

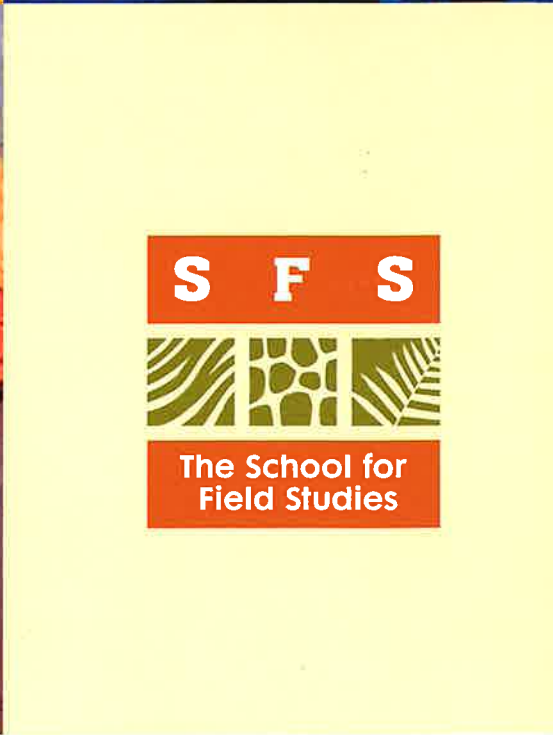
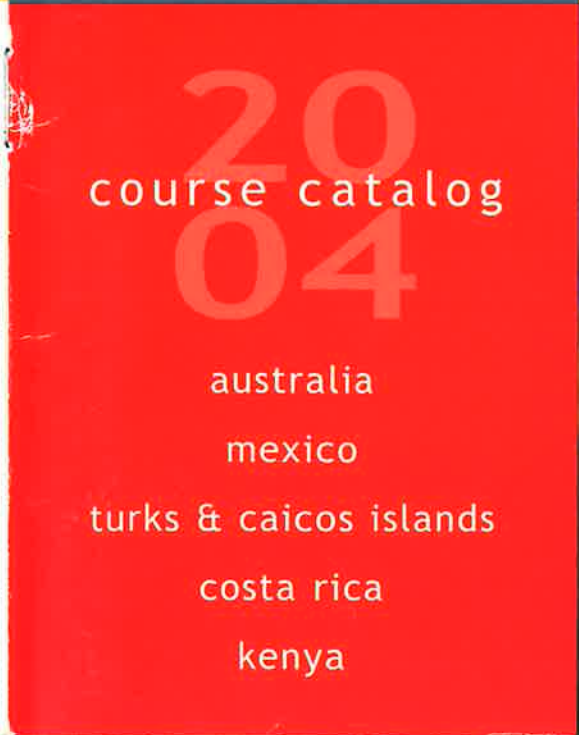
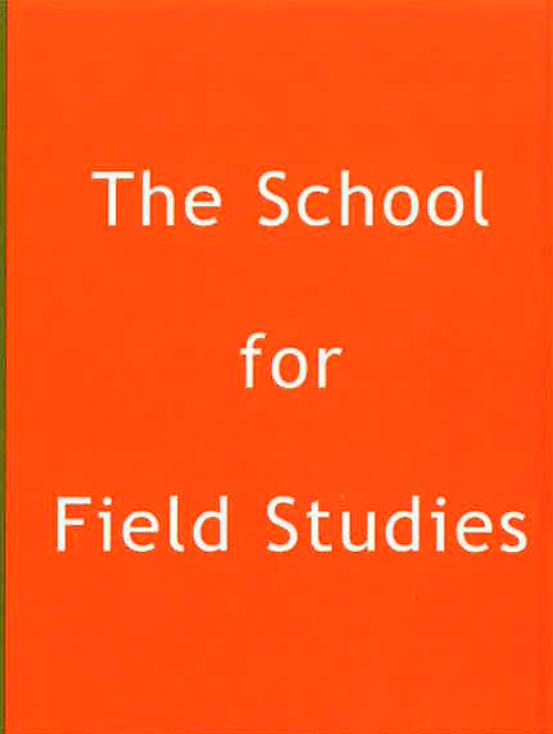


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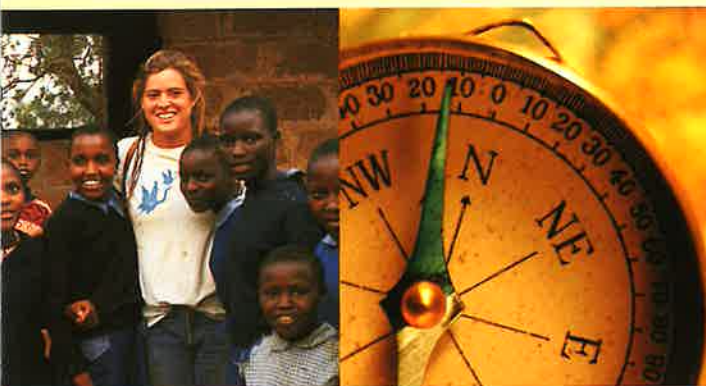
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Dear Student:



Frequently we are informed of how many acres of rainforest are destroyed each day, how many animal, fish or bird species become extinct, and how quickly the human population is consuming scarce, non-renewable resources. In the face of these huge and depressing realities we as individuals and organizations are faced with a stark set of questions. What can we do about these events, if anything? Where do we begin? What will our efforts matter?

One of the primary challenges in the lives of individuals and organizations is that we can rarely predict which specific actions we undertake will have a dramatically positive impact, or create progressive institutional change on a broad scale. In reality, we can not with absolute certainty address the questions I posed above. Rather, armed with the best information available, sound data, collegial effort, a high degree of energy, and sheer will power, committed individuals and organizations stand up each day and take the personal and professional risks of responding to the increasingly difficult social, political and environmental challenges of our times.



Through our unique educational model, SFS is absolutely committed to addressing the challenges facing our global society. Our goal is to train students to develop and hone the precise skills required to address complex global issues, including hands-on field experience, international community experience, technical expertise, and interdisciplinary thinking. SFS alumni have taken on a very broad range of professions and interests over the

years. Nearly all of them tell us that their SFS experience was a pivotal point in their personal and professional lives. As teachers, lawyers, doctors, researchers and public policy advocates, they are positioned to address the tough questions I raised above, and to influence so many other individuals and institutions in the process.

Through participation in an SFS program, you will move yourself to a new realm of experience and consciousness of the world. You will experience international community interaction in a way that will absolutely energize you. And you will engage in environmental issues in a way that will guide your future endeavors as a student and professional.

I encourage you, I challenge you, to engage in this process of personal growth and preparation for dealing effectively in a world of increasing complexity. At a time in history when there is so much disrupting the human community and natural environment, your involvement with SFS will position you to be an effective agent for positive change in whichever future arenas you decide to engage.

Paul Houlihan

President



The School for Field Studies
10 Federal Street, Salem, MA 01970
P: 800.989.4418
E-mail: admissions@fieldstudies.org
www.fieldstudies.org

why study with SFS?

For Yourself

What you gain from an SFS program can not be achieved by simply sitting in a classroom. Hands-on field experience, practical and transferable research skills, and cross-cultural awareness are only a few of the benefits of our programs. You will develop leadership skills, build self-confidence, and discover the vital role you can play in the larger global community. When you finish an SFS program, you will not only walk away with the education of a lifetime, you will never view the world—or yourself—the same way again.

"After four intensive weeks of pushing my physical and mental capabilities to the limit, I feel as though I am ready for just about anything!"

*Ashley Camhi, Vassar College
Costa Rica, 2002*

For the Community

At SFS, we are committed to preserving the ecological health and sustainability of the communities in which we work. We take our lead from our local partners, who identify environmental issues critical to the community, and then we develop research plans to address them. Through our ongoing research efforts, we provide high-quality results and recommendations that promote the sustainable use of natural resources upon which these communities depend. The personal relationships students develop with members of the local community put a human face on the environmental problems they are studying. For many students, these friendships are the most rewarding part of their SFS experience.

"Our research affected the lives of real fisherman—people that we saw everyday on the docks, in the stores, and people that we kept in our hearts. We knew we had to do our work competently."

*Amy Aieta, Trinity College
Turks & Caicos Islands, 2002*



For the Environment

SFS believes that everyone has a valuable role to play in helping to protect our environment for future generations of plant, animal and human life on earth. Yet tackling big problems can be daunting, and you might question your ability to make a difference. As an SFS student, you won't just read about an environmental problem—you will be part of an international research team working to solve it. Whether you are replanting critically fragmented rainforests in Australia, tagging endangered sea turtles in Mexico, or helping Costa Rican farmers transition to organic agriculture, you will be challenged and inspired by the work you do. We believe that the future of our environment depends upon educating, inspiring and activating people, businesses and government leaders to be stewards of the environment. *Your* work will make a real difference in a local community and make a positive contribution toward the sustainable use of the world's natural resources.

"I came away with deep knowledge of a serious environmental problem along with the tools to help solve it. Never before have I felt so connected to something so positive."

*Claire Nelson, Wellesley College
Australia, 2002*



SFS overview

About The School for Field Studies

Founded in 1980, The School for Field Studies (SFS) is one of the country's oldest and largest undergraduate environmental study abroad programs. Through our network of field stations, we have been teaching students how to address critical environmental problems using an interdisciplinary, experiential approach to education. We take our students out of the classroom and into communities around the world to explore and examine the interdependent cultural, economic and ecological aspects of real-world problems. In the end, our students leave their SFS program with a deeper understanding of the complexity of environmental issues, and a unique perspective on what it really takes to develop long-term conservation solutions.

How do you choose a program?

Key to the SFS model is working closely with local communities to address environmental issues. No matter which program you choose, you will develop a unique perspective on what it really takes to develop long-term conservation solutions. You will gain relevant field experience and skills that will prepare you for a professional career. Browse our catalog and website (www.fieldstudies.org) to learn about the research at each of our field stations. Focus on programs that reflect your personal interests as well as your academic and career goals. Then contact an SFS Admissions Counselor at 1.800.989.4418. They can offer advice and put you in touch with SFS alumni for a first-hand student perspective.



Who studies with SFS?

We welcome a diverse student body and promote an atmosphere open to different cultures and perspectives. Students come to us from over 300 colleges and universities with a broad spectrum of backgrounds and experiences to participate in our semester and summer programs. In keeping with our interdisciplinary approach to environmental problem solving, we strive to build teams that represent a cross-section of the global student body, including liberal arts, science and economics majors.

Academic Program

Our interdisciplinary, experiential approach to education is designed to train students to learn by doing. As students engage in high-quality field research, they begin to understand the challenges of confronting environmental issues. They learn the value of experiencing another culture, 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

Applications from qualified candidates are considered on a first-come, first-served basis. It is therefore to your advantage to submit a completed application as early as possible. Programs fill quickly, so we encourage you to apply early to ensure admission into the program of your choice. Applications are reviewed on a year-round, rolling basis. (For details, please refer to page 36.)

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. (For details, please refer to page 39.)

We offer challenging field research experiences in semester and summer programs at every SFS field station:

- Semester programs: Four courses of four credits each, averaging 95 days (including a five-day midterm break). *Costa Rica semester program carries 18 semester credit hours.*
- Summer courses: Condensed, 30-day, four-credit programs; like our semester programs, they include lectures, field exercises, research and field trips.

Financial Aid

Approximately one-third of our students receive SFS financial aid in the form of grants and interest-free loans. 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. If you need financial assistance, we strongly encourage you to submit an SFS Financial Aid Application as soon as possible. Qualifying students may use a combination of federal financial aid (Stafford Loans, Pell Grant and PLUS Loans), home school grants, 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 37.)



What language preparation will you need?

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. We do offer informal language instruction at our Mexico and Kenya programs.

Costa Rica semester students will now receive two additional credits (twenty contact hours of language instruction; twenty hours of lecture, field and community activities) for our new culture and language course. This course will better integrate the socio-cultural and Spanish speaking aspects of Costa Rica into our sustainable development research and teaching program. You will need to have completed at least one semester of college-level Spanish or otherwise demonstrate a level of proficiency to participate in our Costa Rica semester program.

"I learned from SFS that when society, economics, culture, and nature intersect, many complex problems arise, with just as many complex possible solutions. Nothing is simple. There are just as many answers as questions, and just as many angles to a situation as there are interpretations about what exactly the situation is.

Sound complicated? It is—I learned that, too!"

Catherine Schmidt, Whitman College
Costa Rica, 2002

Safety

Studying abroad is not without risks. At SFS the safety and well being of our students is a priority. We have developed a comprehensive safety scheme that includes a full time Safety Director, on-site Student Affairs Managers and a Safety Advisory Committee. We have excellent information and communication systems and a full repertoire of contingency plans. Staff and students are continuously engaged in safety education, judgement training and intercultural competency training.

Faculty

SFS offers a guided learning experience where teaching and mentoring are the foundation of the student's experience. We believe that learning professional field skills requires highly qualified teachers. Each field station is staffed by a Center Director and two to three full-time, resident faculty. Professors are selected based on their teaching and research qualifications, leadership skills and commitment to field research and community-based environmental work. Most of our faculty are native to the country/region in which they teach.

faculty profiles

The SFS Faculty Team

Mentoring by our faculty teams is key to the SFS 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, socio-economics and policy.



Simon K. ole Seno, Ph.D., Center Director
Center for Wildlife Management Studies, Kenya
Ph.D. in Wildlife and Fisheries Science, Minor in Cultural Anthropology, University of Arizona

Seno went to school when most Maasai did not—he wasn't a good livestock herder, so his father directed him to school instead. Seno earned a B.S. in Range Science and an M.S. in wildlife ecology from 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. He 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 in human dimensions in natural resource conservation.



Robyn Wilson, Ph.D., Center Director
Center for Rainforest Studies, Australia
Ph.D. in Animal Ecology and M.Sc. in Tropical Ecology, James Cook University

Robyn has worked in tropical ecology for 15 years as a lecturer and researcher. She has a multidisciplinary approach to research, combining ecology and social science research methodologies with a focus on wildlife-human interactions. Her Ph.D., conducted in the Australian tropical rainforest, addressed the impact of roads and power lines on the movements of arboreal mammals. Her recent research focused on biophysical and psychosocial impacts associated with visitation to the rainforest and has led to the development of a visitor monitoring system for the Wet Tropics of Queensland World Heritage Area.



Nolan Quiros, Ph.D., Center Director
Center for Sustainable Development Studies, Costa Rica
Ph.D. in Agricultural Economics, Oklahoma State University.
LLM, International Environmental Law, American University;
J.D., University of Costa Rica

Nolan started his professional career as a lawyer in Costa Rica with a great interest in international trade issues. He later worked as a researcher for the Center for International Environmental Law and as a visiting scholar for the Environmental Law Institute, focusing on the impact of trade in the environment, and he participated in the Costa Rica-Mexico Free trade agreement negotiation team. Nolan returned to the



U.S. as a Research Associate at the Oklahoma State University Policy Center where he finished a Ph.D. in Agricultural Economics, focusing on the effect of U.S. Agricultural Programs on the economy and the environment. He has collaborated with the U.S. Department of Agriculture in a variety of U.S. domestic projects and with the Organization of Economic Cooperation and Development in Paris on international environmental research.

Francisco Ollervides, Ph.D., Center Director
Center for Coastal Studies, Mexico
Ph.D. in Wildlife & Fisheries Science, Texas A & M University

Over the past ten years, Paco, as he is known, has been involved with SFS in various capacities—from sponsored student at the original Marine Mammals program in La Paz, to intern in Mexico and Costa Rica to faculty in Mexico. While conducting research for his Ph.D. Paco arrived with the whales every spring for the first four years of the Center for Coastal Studies programming in Puerto San Carlos. His doctoral studies involved assessing the impact of whale-watching activities on the bio-acoustic behavior of gray whales in Magdalena Bay. Just prior to re-joining SFS as director of the Center for Coastal Studies in July 2003, Paco was coordinator of the Nature Guide Training Program within the Ecotourism and Community Development Program at the RARE Center for Tropical Conservation in Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico.

David Wilson, Ph.D., Center Director
Center for Marine Resource Studies,
Turks & Caicos Islands
Ph.D. in Marine Ecology, James Cook University & the Australian Institute of Marine Science

Dave's education and fieldwork research have focused on coral reef and reef species ecology. His thesis focused on the patterns and processes of coral reef fish larval supply to the San Blas Archipelago, Caribbean Panama. Dave spent two years with the Smithsonian Tropical Research Institute in Panama City as a Pre-Doctoral Fellow. Before joining SFS, Dave worked as a project leader for the Department of Marine and Wildlife Resources in Pago Pago, American Samoa. His program, the 'Biology and Ecology of Key Reef Species,' was part of a territory-wide coral reef monitoring program that the department committed itself to developing.



alumni profiles



Casey Wilkinson

Turks & Caicos Islands, 1995

Coral Reef Specialist, National Marine Fisheries Service, Honolulu, Hawaii
B.S. Principia College, 1997 & M.App. Sci., James Cook University, Townsville Australia (pending)

When asked how his SFS experience influenced his career development, professional and personal goals, Casey replied, "My time at SFS was the defining experience in my scientific career. I wasn't sure what exactly I wanted to do before I went. I was absolutely certain after it was over. I knew in one way or another I was going to spend my life studying the ocean." Eight years after his SFS program, Casey is doing just that. He is a Coral Reef Specialist for the National Marine Fisheries Service's Coral Reef Ecosystem Investigation in Honolulu. Casey analyzes digital video footage of coral reefs to help map the habitat of reefs in the U.S. Pacific territorial waters. When combined with other oceanographic and biological data, this information will help the National Oceanic and Atmospheric Association (NOAA) make coral reef management decisions. In January, he will be going on a month-long cruise in American Samoa aboard the NOAA ship Oscar Elton Sette as part of this investigation.



Susan Studer King

Costa Rica, 1995

Community Outreach Manager, Ohio Environmental Council
B.A., Denison University; Environmental Leadership Institute

Susan started her career in the environmental sector working for National Audubon Society's Population and Habitat Campaign, and soon after, joined the Ohio Environmental Council (OEC). Starting as an outreach coordinator for the Clean Air and Community Outreach programs, she now leads the OEC's Factory Farm and Landfill programs, providing technical training and organizational assistance to local grassroots groups. As an Environmental Studies major with a concentration in Sustainable Development and a minor in Latin American Studies, the SFS program fit neatly with Susan's personal interests, language skills and academic goals. "I gained invaluable hands-on experience under the tutelage of outstanding professors and advisors. The field work and individual research projects were extremely valuable. The experience completely changed my perception of U.S. foreign policy regarding aid, and challenged my assumptions about food production and agriculture's environmental impact."



Kara Dwyer Dodge

Turks and Caicos Islands, 1997

NMFS Northeast Region (ME to VA) Marine Mammal Stranding Program Assistant Coordinator & Sea Turtle Stranding Program Coordinator
B.A., Biological Anthropology, Harvard University 1998

"I hail from the small coastal town of Scituate, Massachusetts. Boats and fishing are a way of life there, and I grew up around lobster boats, fish piers and clam flats. After earning my bachelor's degree from Harvard in 1998, I spent the next year in the West Indies working on projects ranging from sea turtle conservation in Barbados to marine reserve productivity in St. Lucia. I moved on to Woods Hole working for the Fisheries Acoustics Research Group at the National Marine Fisheries Service (NMFS) Northeast Fisheries Science Center to work on marine mammal and sea turtle stranding and entanglement issues."

Kara chose SFS to fulfill an interest in field-based research on marine resources and habitat. "I found the directed research useful—it was good preparation for learning how to plan, set up, carry out and follow through on a project, and make your results applicable to real problems and real solutions" says Kara. "I look back on SFS as the starting point in my island field work experiences, all of which have been extremely beneficial as I've moved on to other jobs. Working in these settings also showed me how important a good education and outreach program is to build support and understanding for your work with the local community. I learned about the great diversity of plant and animal life in that region and how to work in a team environment with my fellow students. I gained an appreciation for the trials and tribulations of doing field work, which I've carried with me in all of the projects that have followed. I also learned about the value of learning by doing, and am sure that my time there has inspired me to continue in the marine science field."



make a difference through research

SFS Five-Year Research Plans

Engaging in long-term research that will directly benefit the communities in which we live is central to the SFS mission. The framework for directing our research is born out of what we call the Five-Year Research plans. These plans form the basis for the academic and community interaction program content and help students fully understand the scope and significance of the work they will be doing at each field station. SFS alumni can also track the progress of the work that they contributed to our on-going research.



Research Plans for Each Field Station

Australia

The Center for Rainforest Studies is exploring the biodiversity benefits of restoration, the cost efficiency and ecological effectiveness of rainforest restoration site management practices and restoration planning in a riparian zone. With the results of this research and our replanting projects, we will help to connect and create corridors between existing rainforest fragments, protect local drinking water sources and share best site management practices with rainforest restoration researchers worldwide.

Costa Rica

The Center for Sustainable Development Studies is exploring means of promoting sustainable land use and effective land protection in response to pressure from population growth and a degraded natural resource base. With the results of this research (including our very own transitional organic farm), we will help to develop protocols and training for farmers to help them obtain organic certification, select and monitor indicators of biodiversity, as well as provide information about improving national park operations and relationships between parks and local people.

Mexico

The Center for Coastal Studies is exploring ways to conserve the ecological health of Bahía Magdalena and improve the management of its exploited marine resources to sustain the socio-economic stability of the local community.

Our research monitors marine resources, water quality and the protection and conservation of the gray whale and the highly threatened green sea turtle. Our goal is to provide sound stock management and species conservation advice to governmental regulators and the local community.

Kenya

The Center for Wildlife Management Studies is exploring ways to improve wildlife and rangeland management within national parks, and promote co-habitation between humans and migrating wildlife. Our research investigates range and wildlife ecology, as well as human-wildlife conflict and competition around national parks. Our goal is to provide advice that will help maintain ecological balances in and around protected areas and sustainable co-habitation between human settlers and wildlife in regions surrounding the protected areas.

Turks and Caicos Islands

The Center for Marine Resource Studies is exploring ways to improve the sustainability of exploited marine resources and the protection of the near pristine coral reef ecosystem at South Caicos. Our research monitors the stocks of lobster and conch, the condition of coral reefs and the populations of reef fish. Our goal is to provide the local community and tourism developers with advice that will help sustain the traditional fishing economy as well as minimize the environmental impacts of growing tourism on the terrestrial and marine environments.

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 which could include injury, illness or even death. SFS has a detailed plan in place designed to address safety concerns. This plan includes providing students with safety information before they get to the field, minimizing risk while in the field and having contingency plans to effectively react to an emergency situation, should one arise.

Highlights to the SFS approach to program safety and risk management include:

- **Safety Director:** a full-time professional focusing on managing the risks in our programs by promoting a high awareness of safety through training and risk assessment.
- **Safety Advisory Committee:** comprised of experienced professionals with medical, international, and outdoor program expertise.
- **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. At a minimum, SAMs are trained as Wilderness First Responders (a 72-hour medical course). Other SAM training may include Wilderness EMT, Lifeguard, Emergency Water Safety, Rescue SCUBA Diver, British Canoe Union/American Canoe Association kayak training.

Detailed predeparture information includes information on risks, safety, and health issues and a thorough on-site orientation to the country and community in which our students will be living.

semester programs

Semester Program Structure and Content

Semester programs run for approximately 95 days, including a five-day midterm break (an opportunity to travel on your own). We compress a 16-week semester into 14 weeks, so be prepared for a very intensive but rewarding learning experience!

Field Station Research Plan

SFS staff, working with the local community and local authorities, establish a multi-year research plan that drives the direction and timing of their own as well as student Directed Research projects and most course-related field exercises and excursions.

Elements of the SFS Academic Program

SFS semesters are designed to train students to become competent field researchers. We identify the Directed Research projects for each student and then train them to carry out the projects through three courses delivered in a case study format.

Courses and Field Exercises

Faculty provide the core lectures needed to understand the content areas pertinent to the case study and research questions (ecology, natural resource management, socio-economics and policy and directed research). Students are enrolled in four courses of four credits each, including the Directed Research project.

Daily schedules vary. The first half of the semester includes approximately fifteen 60-90 minute lectures a week plus 3-5 other academic activities (e.g., research/field exercise group meetings, presentations and guest lecturers). Afternoons are often filled with field exercises and field trips. Academic activities occur six days a week with at least part of one weekday devoted to a community service activity. Extended field trips, weather conditions and schedules of guest lecturers may impact the daily schedule.

There are fewer lectures and classes toward the end of the semester as more time is allocated for work on the Directed Research projects. Our field stations are run cooperatively, so we ask for your help with daily chores and weekly site clean up.

Examples of field skills taught in our programs:

Animal behavior observations; population censusing; mark and recapture studies; radio tracking; habitat assessment; species (plant and animal) identification; geology and soil identification; water sampling methods; research mapping; timber estimation; transect and patch sampling; reef monitoring; data recording; etc.





kenya

Community Wildlife Management

Urban, industrial and agricultural expansion and Kenya's soaring population increasingly threaten the habitat required by Kenya's wildlife.

Lion, elephant, giraffe, rhino, monkey, zebra and other indigenous wildlife are the country's most famous and economically valuable resource, thanks to a well-developed global tourism industry.

Previously nomadic peoples such as the Maasai and the cattle herds they depend upon have been confined to smaller plots of land, resulting in overgrazing and rangeland degradation. The wildlife, which has co-existed for centuries with these non-hunting peoples, are now seen as competitors for scarce water and grazing resources.



summer program

Project Focus

Community Wildlife Management Options

Students have the opportunity to examine wildlife management at one of our two new field stations—the National Park Camp just outside Nairobi National Park, or the Kilimanjaro Bush Camp near Mt. Kilimanjaro. Students based at the National Park Camp focus on management strategies for Nairobi National Park, Kenya's oldest and most profitable national park. Increased development and human settlement around the park threatens its biological integrity and has led to the decline of large mammal populations. Pollution threatens the water supply and contributes to mortality in numerous bird and animal species. Increased human and livestock populations around the park are leading to intensified human-wildlife conflicts, including disease and destruction of crops by migrating wildlife.

Students at the Kilimanjaro Bush Camp will study the diverse habitat of the wildlife migration corridor between Tsavo and Amboseli National Parks. The Maasai also use this area primarily as a communal grazing zone for livestock. As a result, residents often face economic hardship due to crop damage and loss of livestock inflicted by migrating wildlife.

At both field stations, students will study African climatology and geomorphology, plant and animal identification and theories of island biodiversity. We will meet wildlife managers and gain insight into cultural perceptions by speaking with members of the Maasai community. Data collected during field work will be used to assess the best land use and wildlife management options for the local community.

Field Work and Exercises

- Trips to National Parks, such as Amboseli, Tsavo and the Maasai Mara to camp and view the spectacular wildlife.
- Visits to cultural *manyattas* to gain insight into Maasai history and traditions.
- Field expeditions to conduct vegetation sampling, community surveys and wildlife abundance assessments.

Connecting with the Local Community

Our program in Kenya is oriented toward helping the Maasai preserve their traditional way of life and peacefully co-exist with Kenya's important wildlife population. Close connections with the local community have helped establish SFS as a trusted and respected resource. Students have many opportunities to learn about Kenyan culture and interact with local communities, including the Maasai. Farmers, ranchers and park wardens may be interviewed during academic projects, and students often participate in sporting events and community service activities.

Summer Program Dates:

Session I: June 7 - July 6

Session II: July 12- August 10

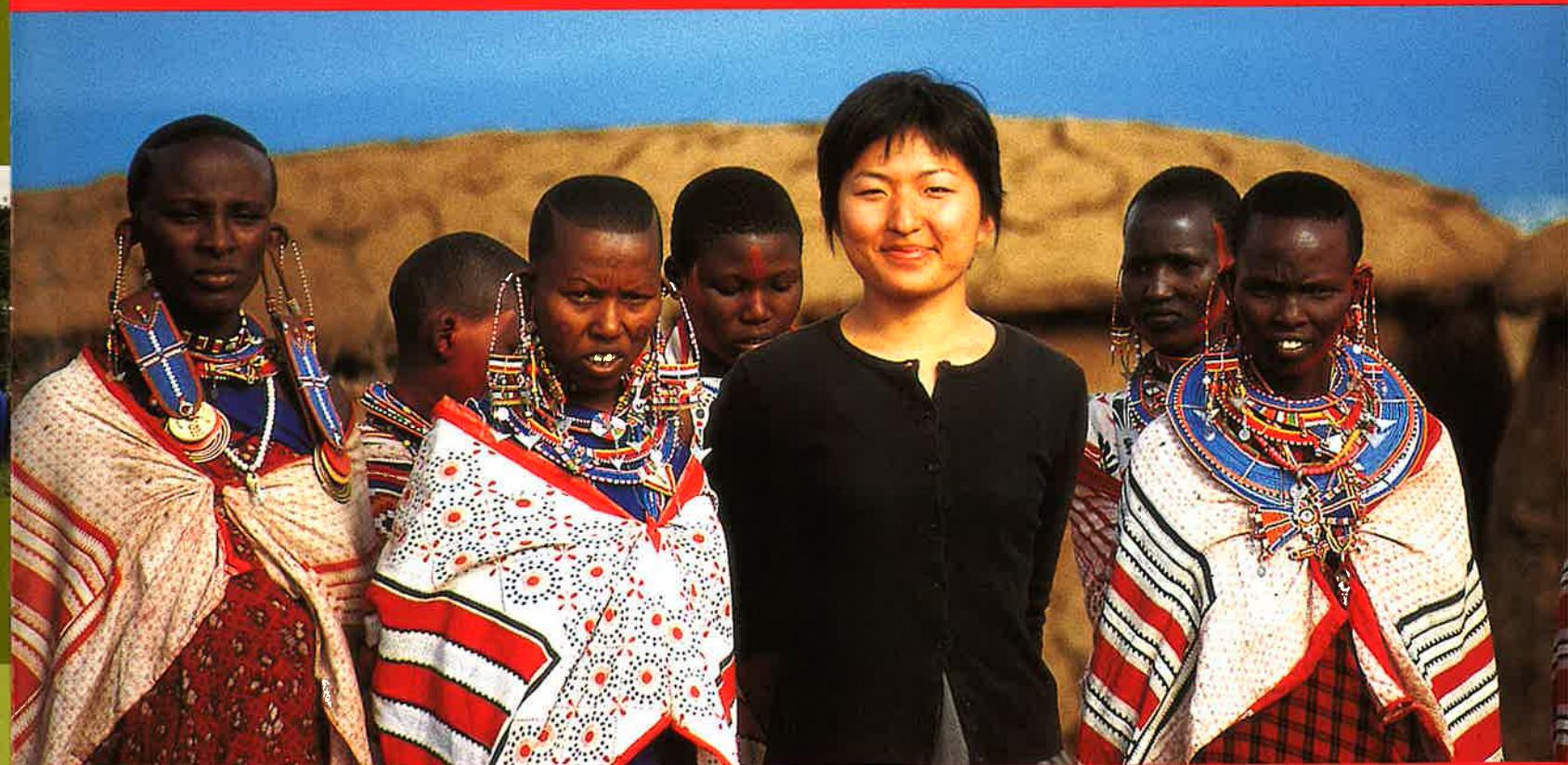
Departure Point:

Nairobi, Kenya

Course Number:

EE(NS) 350 Community Wildlife Management

Live in close proximity to wildlife and local Maasai communities on an African savanna. Learn field research skills at the base of Mt. Kilimanjaro and in famous national parks. Explore human-wildlife conflicts from the perspective of local ranchers, communities and park managers. Visit areas of Kenya and meet residents inaccessible to most tourists.



Semester Program in Wildlife Ecology and Management

Our Research in Kenya

Our current research focuses on exploring innovative ways in which Kenya's wildlife can be both conserved and utilized as an income source. Identifying appropriate land-use practices that enable local residents to maximize and sustain production without degradation of the environment is equally important.

While based at the National Park Camp, students focus on management strategies for Kenya's oldest and most profitable national park. Increased development around the park threatens its biological integrity and has led to the decline of large mammal populations. Pollution threatens the water supply and plays a role in the mortality of numerous birds and animals. Increased human and livestock populations in areas surrounding the park are leading to intensified human-wildlife conflicts, including disease and destruction of crops by migrating wildlife. SFS students are assisting the Kenya Wildlife Service (KWS) and managers of the park through a suite of research projects, including: vegetation mapping; grazing and browsing impact surveys; large mammal population counts and distributions; educational facility upgrades; and human impact in the park.

The diverse habitat surrounding the Kilimanjaro Bush Camp is used by wildlife as a migration corridor between Tsavo and Amboseli National Parks. The Maasai also use this area primarily as a communal grazing zone for livestock. As a result, they often face economic hardship due to crop damage and loss of livestock inflicted by migrating wildlife. Students will engage in ecological and land-use characterization of the area. Through interviews with the Maasai, students gain a perspective on the priorities and challenges of addressing wildlife conservation among resource-constrained communities. This research is 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.



Field Trips, Exercises and Lectures

At both camps our days are spent in a combination of lectures, expeditions, field exercises and research. Field trips enable students to observe the pros and cons of various management scheme alternatives. Field trips might include:

- Maasai Mara: multi-day field trip that frequently includes sightings of lion, leopard and buffalo and a visit to the hippo pools. Hyena cries can be heard at night; by day, students conduct vegetation analyses comparing fenced and open grazing areas.
- Manyatta: rare opportunity to glimpse Maasai culture, including rural settlements not usually visited by tourists. Recent trips have involved students in a musical ceremony by Maasai women, demonstrations in fire-making, dances by Maasai *morans* (warriors) and lessons in spear throwing.
- 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.

Recent Student Directed Research Projects

- Population Dynamics, Distribution and Vegetation Preference of Specified Fauna Residing in Nairobi National Park.
- Rangeland and Grazing Capacity Assessment of the Grasslands of Nairobi National Park.
- Land-Use Patterns and Human-Wildlife Relations in the Southern Dispersal Corridor of Nairobi National Park.
- An Assessment of Land Productivity, Water-Use Efficiency, and Related Economic Implications within the Inkisanjani Agro-Pastoral Zone.

Connecting with the Local Community

Students truly value the numerous opportunities to interact with the local community. One of our primary goals is to understand community views on wildlife, the challenges faced and management policies employed by park managers. Therefore, involvement with Kenyans is key to our research. We maintain close ties to local community members, including park wardens, ranchers, farmers, pastoralists and others. In addition, students can take advantage of many opportunities for social interaction including:

- Discussions with field station staff who come from various regions of Kenya and belong to several Kenyan tribal groups including Kamba, Maasai and Luo.
- Informal lessons in Swahili and Maa.
- Manyatta visits with the Maasai in areas off the regular tourist routes.
- Community service work in local schools.



Center Contributions

SFS has been in Kenya since 1981 and many hours of student research have contributed to management plans for game ranches, several Maasai group ranches, and national protected areas, such as Nairobi National Park. Student Directed Research presentations and community projects are frequently the highlight of their SFS experience.

A few recent contributions include:

- Assessment of the socio-economic impacts of the Kimana Wildlife Sanctuary, the first private reserve operated on a Maasai group ranch. Ranch managers are using these data to develop sustainable management policies.
- Collaboration with local Maasai and the KWS to conduct the first assessment of water and grazing resources in the Ngong Hills. Decisions regarding stock rotation and use of pasturelands were based on their findings.
- Assistance in building a library in the town of Magadi and teaching the local schoolchildren about the environment.
- Memorandum of Understanding between SFS and KWS concerning our research in Nairobi National Park.

**"The facilities, especially the location,
finalized the experience of living a dream.
Personally, my experience can be
described by one word—amazing."**

SFS Field Stations in Kenya

The Center for Wildlife Management Studies offers students the incredible opportunity to learn and conduct research from two prime locations. Our National Park Camp is located on 60 acres of the Athi-Kapiti plains, on the southern border of Nairobi National Park. The combination of rocky outcrops, riverine vegetation, bushland and open grassland support amazing biodiversity. From the plateau and ridge above the camp, one can look down into the park and spot giraffe, buffalo, rhino, zebra, cheetah, lion and even leopard. The Ngong Hills and the Mbagathi River, where wildlife commonly crosses between the park and the dispersal area, are also within view.

Our Kilimanjaro Bush Camp is located southeast of Nairobi on 25 acres of fenced land at the foothills of Mt. Kilimanjaro, bordering a permanent river fed by natural springs. Adjacent to the river is a lush zone of yellow Acacia trees with clear undergrowth giving a perfect view of



the magnificent vegetation mosaic. Across the river is Kimana High School, where SFS students enjoy a rare opportunity for cultural exchange with Kenyan youth and to visit nearby Maasai *bornas* (villages).

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.

Semester Program Dates:

Spring 2004:

January 30—May 7

Fall 2004:

September 10—December 16

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

BI/EE (NS) 371 Techniques of Wildlife Management (4 credits)

BI/EE (NS) 372 Wildlife Ecology (4 credits)

EE (SS) 302 Environmental Policy and Socioeconomic Values (4 credits)

EE 491 or 492 Directed Research (4 credits)

Please see Page 28 for course descriptions.



costa rica

Sustainable Development Studies

Environmental Issues Costa Rica is internationally recognized for its efforts to ensure biodiversity and protect natural resources. The country supports more than 5% of the world's biodiversity and boasts 230 different protected areas (about 28% of the country). The cloud forests, rainforests, volcanoes and mountain plains here shelter as many as 6,000 plant species, including at least 1,000 orchid varieties alone. The presence of over 500 species of butterflies has led to profitable butterfly ranching while more than 800 bird species—quetzals, toucans, hummingbirds and scarlet macaws—are found in the wet and dry forests. The magnificent beaches bordering both coasts are among the world's largest-known nesting grounds for sea turtles.

Costa Rica now faces a struggle common to developing countries: preserving beautiful (and economically valuable) natural resources while increasing prosperity and allowing for sustainable development. A particular challenge is maintaining biodiversity in the face of competing land use, such as agriculture. It is crucial that effective alternatives and strategies are developed to ensure long-term sustainability of the country's rich resources.



explore Costa Rica's incredible biodiversity

and unique ecosystems. Investigate natural resource management challenges in world-renowned protected areas.

Work with local cooperatives to identify innovative

sustainable agriculture development options. Immerse

yourself in the warm and welcoming community of Atenas.



costa rica

Semester Program in Sustainable Development

Our Research in Costa Rica

Costa Rica is currently undergoing a period of great economic and social change. The country has shifted from an economy predominately based on agriculture to one driven by ecotourism and technology exports. At the same time, the population continues to rapidly increase, straining natural and developed resources. This industrial and cultural transition creates a very exciting and rewarding time to be studying in Costa Rica.

Our goal is to develop sustainable management models that protect the biodiversity of Costa Rica's ecosystems while promoting socioeconomic benefits for its people. Our research focuses on determining the ecological and economic viability of organic agriculture and developing protected area management strategies that conserve biodiversity and protect natural resources.

Students work with the local coffee cooperative to investigate organic coffee production costs, marketing, pest management and species diversity as an indicator of ecosystem health. This information helps local farmers obtain national certification as organic farms, and measures the stability of organic farm ecosystems. Students also share organic farming practices with the local community, which they learn by working and studying the organic farm at our field station.

Students also explore protected areas to develop and implement biodiversity monitoring programs and evaluate the success of different management strategies. Visits to cloud forests, dry forests, volcanic parks and lowland rainforests offer the opportunity 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.

Our field station is developing a Memorandum of Understanding with the Ministry of Energy and Environment to expand our studies of the Central Volcanic Mountain Range and Conservation Area. Students will help develop methodologies and information that will help park administrators make better decisions on managing park natural resources and ensuring benefits for the local people.

Field Trips, Lectures and Exercises

- Santa Rosa National Park: camping trip to explore a rare and threatened tropical dry forest ecosystem, site of one of the biggest forest restoration projects in Latin America.
- Volcan Poas National Park: investigate parks and people relations and park facility and visitor information needs.
- Braulio Carrillo: national park encompassing a wide range of altitudes, ecosystems and a huge variety of plant and animal life.



- Carara National Park: home to monkeys, sloths, scarlet macaws and crocodiles, Pacific coastal rainforests offer additional lessons in biodiversity.
- Eternal Children's Rain Forest Private Reserve and Volcan Arenal National Park; agricultural land surrounding the park.
- Local coffee plantations, farms, preserves, forests and the communities of Atenas.
- Rincon de La Vieja National Park: camping trip to the cloud forest and volcanic mud piles.

Student Directed Research Projects

- Barriers to certification as organic coffee farms in Costa Rica.
- Use of organic versus chemical inputs in agriculture.
- Assessing the services of national parks in Costa Rica from the perspective of people who live in areas around the Volcan Poas National Park.
- Monitoring bird diversity in Braulio Carrillo National Park.
- Developing biophysical indicators of ecosystem health using aquatic invertebrates.
- Comparing ecosystem health in organic versus conventional farms and in disturbed versus undisturbed forested areas.

Center Contributions

Student research presentations, an open community event at the end of the semester and smaller presentations for our clients are frequently the highlight of the SFS experience. Examples of the work done by our staff and students include:

- Developing and testing organic farming protocols with local coffee farmers, supported by a Hewlett Packard grant.
- 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.
- Providing guidelines and protocol for organic certification to local farmers, some of are now certified, thanks to our support.
- Developing and monitoring water quality indicators for Braulio Carrillo National Park.
- Assessing handicapped accessibility of trails in Volcan Poas National Park.
- Documenting the effects of habitat fragmentation created by the highway that dissects Braulio Carrillo National Park.

Connecting with the Local Community

Students truly value the numerous opportunities to integrate into the local community. We spend significant time with local residents, farmers and agricultural cooperative members to better understand their perspectives and needs. Our academic focus and community connection allows students to become involved in local social activities such as:



- Spanish lessons and a Spanish language and culture course to help sharpen conversational cultural awareness skills.
- Soccer games, community festivals, tutoring in schools, volunteering in orphanages, establishing recycling efforts.
- Costa Rican holiday celebrations; hosting local residents at our field station events.
- A short homestay to deepen students' experience of a different culture and relationships with the local community.

Prerequisites

Applicants 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 completed at least one college level course in Spanish or otherwise demonstrate a working knowledge of conversational Spanish prior to participating.

As of Fall 2003, SFS is introducing a new Spanish language course, (LS) **Language, Culture and Society of Costa Rica**, which offers listening, oral and written practice of Spanish at beginner, intermediate and advanced levels of proficiency. Written grammar and vocabulary exercises will help students 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 our community partners.

Special note:

A portion of semester program spaces are reserved for applicants from University of Michigan and Allegheny, Colby and Dickinson Colleges. These applicants should consult their Environmental Studies Department for application information.

SFS Field Station in Costa Rica

Our field station, 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 surrounded by small faculty cabins, an outdoor classroom, an organic garden, a patio and pool. Students live in a brand new dormitory (up to 4 to a room) with bathrooms. There is a classroom, small laboratory and a library/computer room. We look out over green hillsides dotted with farms growing coffee, mangoes, bananas and citrus. 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.

Semester Program Dates:

Spring 2004:

February 2-May 7

Fall 2004:

September 13-December 16

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

EE(NS) 377 Tropical Ecology and Sustainable Development (4 credits)

EE(SS) 303 Economic and Ethical Issues and Sustainable Development (4 credits)

EE(NS) 374 Principles of Resource Management (4 credits)

EE 491 or 492 Directed Research (4 credits)

(LS) 205E Language, Culture and Society of Costa Rica (2 credits)

Please see Page 28 for course descriptions.

"Being involved in real field research and community projects is very satisfying."



mexico

Marine Mammal Conservation & Coastal Ecosystem Studies

Environmental Issues Bahía Magdalena, an area of profound physical beauty, is among the largest remaining intact coastal wetland/lagoon systems along the Pacific coast of the Americas. Extensive sea grass beds and mangrove stands, intertidal sand and mudflats, barrier islands and large rocky shore areas where rookeries of sea lions bask are our classrooms. The Bay is an important feeding ground and nursery area for East Pacific green turtles, Loggerheads, Olive Ridleys and rare Hawksbill turtles, and is home to schools of bottlenose dolphins. Over 100 species of migratory and resident birds use the Bay at various times of the year. Perhaps the most spectacular of the Bay's inhabitants are the California Gray whales. 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 fishermen ply the waters for commercially important species, including shrimp, blue crab, lobster, scallop and fish. Unfortunately, critically endangered sea turtles are caught as by-catch in these fishing operations.

Most local residents are economically dependent on the Bay's marine resources, yet little research has been done on this ecosystem and the ways in which its resources may be sustainably used. 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 U.S. and Mexican governments that protection of this unique ecosystem is urgent. The question remains—how can resource conservation and community economic development be balanced in a sustainable way, to the benefit of both?



explore incredible natural habitats ranging
from flowering deserts to species-rich marine ecosystems.

Help the local community manage endangered sea turtles,
marine mammals and harvested marine resources. Live on
the edge of cacti-strewn desert, mangrove filled lagoons,
and the incredible biodiversity of Bahía Magdalena.



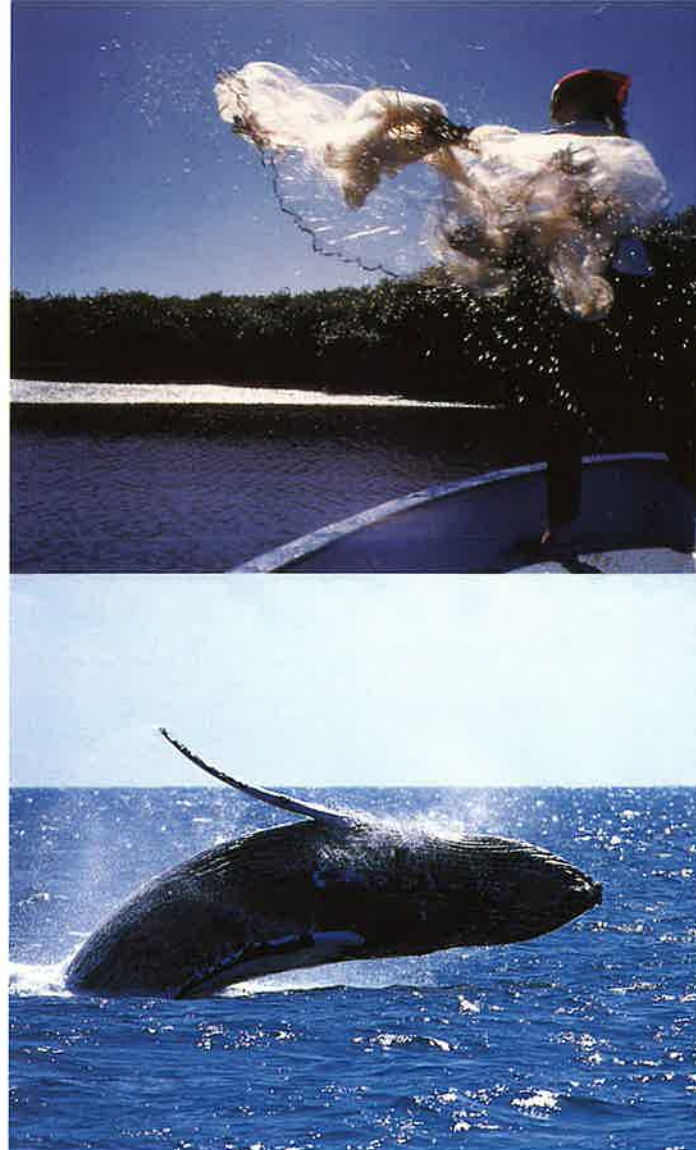
Semester Program in Marine Mammal Conservation & Coastal Ecosystems

Our Research in Bahía Magdalena

In addition to our year-round interests in the management of critically important fisheries and water quality issues in Bahía Magdalena, our unique location allows us to concentrate on very different but equally fascinating species each semester. The spring semester focuses on applied ecology of the gray whales and a socio-economic analysis of whale watching activities. Since commercial whaling was banned in 1946, the gray whale population is thought to have recovered to around 20,000 whales. Only four calving and mating grounds for this species are known to exist and Bahía Magdalena is the only one not currently protected. The recovered population now drives a growing whale watching industry, which creates new problems that require field research to understand and resolve them.

Students in the fall and summer semesters explore conservation strategies to protect several marine turtle populations reduced to near-extinction. Marine turtles are exploited for their meat and eggs and are frequently harvested unintentionally as by-catch. In Bahía Magdalena, which is a key nursery and feeding ground for the green turtle, there is no comprehensive recovery or protection plan for sea turtles. Student research contributes to an understanding of sea turtle ecology and will assist in the study and protection of these endangered animals.

Our research also focuses on sustainable harvesting and management of important commercial marine resources. SFS students interview fisherman, 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 Trips, Lectures and Exercises

Examples include:

- Bahía Magdalena: use of microbial mats in bioremediation, water quality sampling and testing, and environmental impact and economic importance of local industries.
- Puerto Magdalena: visit traditional fishing families on a boat trip to this small fishing village island.
- Estero San Buto: examples of alternative fisheries at an aquaculture farm.
- Bahía Santa Maria: intertidal zones illustrate the incredible diversity of local marine life.
- Offshore Islands camping trips: explore the area's rich biodiversity, stark dunes and sandy white beaches.

Center Contributions

Opened in early 1997, our field station received funding from one of the first-ever debt for environmental education swaps. As the only permanent field station on the Bay, ours has drawn many researchers from Mexico and abroad, involving SFS students in several important investigations such as:

- Gray whale population study, which has led to a safe increase in whale watching permits.
- 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.
- Socio-economic analysis of blue crab fishery, providing valuable data to the Puerto San Carlos Office of Fisheries to assist in developing management strategies for this critical resource.
- Water quality analysis funded by The David and Lucile Packard Foundation Grant, which resulted in developing a water quality and green sea turtle monitoring program and alternative disposal recommendations.
- Sea turtle research leading to increased awareness and stewardship for this endangered species.



Student Directed Research Projects

Examples include:

- Economic benefit and socio-economic analysis of whale-watching in Bahía Magdalena.
- Assessment of the implementation of a sea turtle protected area and monitoring turtle populations.
- Monitoring anthropogenic impact on the water quality of Bahía Magdalena.
- 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.

Connecting with the Local Community

Our program in Mexico is oriented toward helping the community conserve its natural resources and develop sustainably. And close connections with the local community help establish SFS as a trusted and respected resource. 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:

- Informal Spanish lessons throughout the program, which help sharpen conversational skills.
- Participation in Mexican holiday celebrations and short homestays 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.

Special note:

Due to our community focus and extensive interaction with the people of Puerto San Carlos, who appreciate attempts to converse in Spanish, applicants are strongly encouraged to develop their conversational Spanish skills.

Our Field Station in Mexico

The Center for Coastal Studies, which is fronted by Bahía Magdalena and backed by the cacti-strewn desert, 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 4-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.

Semester Program Dates:

Spring 2004:

February 2-May 7

Fall 2004:

September 13-December 16

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

B/EE (NS) 379 Coastal Ecology

EE (NS) 374 Principles of Resource Management

EE (SS) 303 Economic and Ethical issues in Sustainable Development

EE 491 or 492 Directed Research

Please see Page 28 for course descriptions.

"After years of sitting in the classroom, I am finally getting the opportunity to exercise my knowledge and passion for the environment."



australia

Tropical Rainforest Management Studies

Environmental Issues Australia's spectacular tropical rainforests are home to primitive plant species, birds and marsupials found nowhere else in the world. Giant strangler figs, crimson and green king parrots, sulfur crested cockatoos, rainbow lorikeets, bandicoots and tree kangaroos are just a few of the species filling these forests with color and sound.

Northeastern Queensland's ancient rainforests preserve millions of years of evolutionary history. Parts of Queensland were once covered in rainforests, but agriculture, ranching, mining and logging have destroyed and disrupted rainforest habitat, with only a narrow belt remaining along the eastern coast.

Australia confronted these threats faster than most tropical countries, and most of its remaining forests were protected under World Heritage designation in 1989. But this decision continues to be quite controversial as the country struggles with the conflict between preservation and the immediate need to use natural resources. Many farmers wish to utilize environmentally sound measures, yet face the possibility of going out of business in the next decade due to economic pressures. If efforts to restore the rainforests of Queensland are to succeed, they must also provide economic benefits for the local community.



live in a tropical rainforest amid an amazing
variety of unique birds, plants and wildlife. Work with
local tree-planting groups and research organizations to
manage forest resources. Participate in research and
community projects to restore tropical rainforests. Explore
some of the most exciting natural wonders of Australia.





australia

Semester Program in Tropical Rainforest Management

Our Research in Australia

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. Conservation challenges and cutting-edge management strategies developed here will likely serve as a model for the rest of the world's tropical rainforests.

The ecological and economic benefits of rainforests are increasingly well known, but much less is understood about the ability to restore a rainforest once it has been cut. Our goal is to develop rainforest restoration strategies and practices that benefit both ecosystems and human communities of the Atherton Tablelands. Our Five-Year Research Plan addresses a critical local and regional environmental problem—rainforest fragmentation and lack of connectivity between rainforest corridors. Conducted by SFS staff and students in collaboration with local landholders and stakeholder organizations, the plan focuses on the biodiversity benefits of restoration; cost efficient and ecologically effective restoration site-management practices; and restoration planning in a riparian zone.

Students collect data on habitat use and animal behaviors, land use, local resident involvement in restoration projects and cost effective and ecologically beneficial methods of restoration. Student work contributes toward developing a restoration plan for selected sites within the Tablelands and developing maintenance practices to maximize rates of tree growth. Students are also actively involved in either rainforest replanting or site maintenance with local landcare groups.



Field Trips, Lectures and Exercises

Examples include:

- Chillago: camp in the Outback and explore caves, rock formations and eucalypt forests. Learn firsthand about the history of the Barabaram people at Petford, examine land management issues with members of the Barabaram community.
- Cape Tribulation: visit a local fruit farm and the Bat Center, where flying foxes are rehabilitated.
- Wet Tropics Tree Planting Scheme nursery.
- Geology of Atherton Tablelands.
- Tinnaroo Dam and agricultural industries, forest fragmentation.
- Dairy, sugarcane and other agricultural industries.
- Seedling recruitment of restored tropical rainforest at experimental site.
- Growth and mortality of rare and endangered tropical rainforest species.
- Bird territory and GIS mapping within a restoration site along the lower Peterson Creek.

Center Contributions

SFS students come away with new perspectives, skills and friends, but perhaps more importantly, they make meaningful contributions to the community of North Queensland, including:

- Ongoing monitoring of the floral and faunal succession of the Toohey's Creek Wildlife Corridor, representing one of the first scientific attempts in Australia to link forest fragments to facilitate the movement of wildlife.
- Planting more than 8,000 trees in the past 24 months, most of which were grown from seed at our field station, to restore degraded forests and improve water quality through plantings around watersheds.
- Implementation of our revised experiment to assess tree seedling recruitment and growth based on weed control, working towards recommending best practices for achieving a successful restoration.
- Restoration of more than one mile of rainforest from grassland along the lower Peterson Creek.



Student Directed Research Projects

Examples include:

- Mapping soils and remnant vegetation along the lower Peterson Creek.
- Use of restored and natural rainforests by a rainforest bird community.
- Patterns of colonization of restored rainforest by small- and medium-sized vertebrates on the Atherton Tablelands.
- Survey of monitoring techniques used by local conservation groups.
- Costing a restoration site—Pelican Point.
- Conservation and restoration plan for the lower Peterson Creek.
- Geographic Information System (GIS) mapping of the field station property.

Connecting 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 on extension programs and create linkages between our staff and the stakeholders involved in rainforest restoration and management. We have also established a professional Research Advisory Committee to provide local academic and community access to our resources. Close connections with the community help establish SFS as a trusted and respected resource, and SFS students enjoy getting involved in community volunteer projects and social activities such as:

- Working with local conservation groups and communities to plant rainforest seedlings or to maintain previously planted sites, depending on the season.
- Short homestays that deepen students' personal connections within the community.
- Sporting competitions with Aussies.
- Bush dances, community festivals, visiting the Malanda theatre and socializing at the local pubs.

Our Field Station in Australia

The Center for Rainforest Management Studies lies in the northern foothills of the Atherton Tablelands. Protected World Heritage forests and farmland surround the rolling, hilly site. A third of the property's 153 acres is mature rainforest and the remaining area is forest regrowth. Student cabins are nestled within the rainforest, and sightings of tropical birds, bandicoots, pademelions and other species of rainforest wildlife are common. Students share eight-person cabins and the main building has lecture, computer, library rooms and a kitchen.

Semester Program Dates:

Spring 2004:

February 2-May 7

Fall 2004:

September 13-December 16

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

BI/EE (NS) 369 Rainforest Ecology

EE (NS) 370 Principles of Forest Management

EE (SS) 302 Environmental Policy and Socioeconomic Values

EE 491 or 492 Directed Research

Please see Page 28 for course descriptions

"I take it all in, breathe in the deliciously clean air and reflect on why we are here."



turks & caicos

Marine Resource Management Studies

Environmental Issues The British-governed Turks and Caicos Islands (TCI) lie at the southeastern end of the Bahamian archipelago, 575 miles southeast of Miami and 100 miles north of the Dominican Republic. The turquoise waters surrounding the eight main and numerous small islands are considered to be among the world's top 10 scuba and snorkeling locations. Nearly 50 species of corals 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-studded woodlands, sandy shoals and deep reefs lend a patchwork appearance to the miles of shallow blue waters that surround the Islands.

The Turks and Caicos Islands are a major international exporter of conch and spiny lobster. South Caicos, a key player in this export, is particularly dependent on conch and spiny lobster harvesting. Depletion of these resources would have a dramatic impact on employment and social structure on the island; therefore, developing a sustainable conch and lobster fishery is essential to this resource-dependent community.

Many Caribbean communities have promoted economic diversification to improve economic and social stability. One option for TCI is tourism, but this can lead to detrimental social and ecological change if it is not carefully implemented and managed. The spectacular marine environment that supports tourism can easily be degraded by uncontrolled and environmentally insensitive development. Other forms of economic diversification, such as sport fishing for bonefish, also need to be explored.



dive in one of the most spectacular marine
habitats in the British West Indies. Help find innovative
approaches to fisheries, marine protected areas and
economic diversification. Get to know the friendly South
Caicos island community known as "Belongers."



turks & caicos

Semester Program in Marine Resources Management

Our Research in South Caicos

We are assisting the TCI government's Department of Environment and Coastal Resources (DECR) and the National Park Service in their efforts to manage fisheries and conserve critical marine and terrestrial habitats. Our goal is to help sustain the economic, societal and ecological stability of South Caicos and its island community. With so many local residents dependent on marine resources for their livelihood, and the likelihood of increasing tourism, there is an immediate need to find viable options for managing fisheries and conserving critical habitats, including coral reefs.

Snorkeling and diving in waters surrounding South Caicos, students learn to identify a wide range of marine organisms and habitats, and learn about marine ecology and coastal ecosystems. Students confront the challenges of 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.

Recent research indicates that conch and lobster nursery areas in dense sea grass beds may need protection in order to sustain these economically important resources. SFS students assist in researching 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 option. Students help monitor the condition of the spectacular coral reefs, both inside and outside the MPAs, using the Atlantic and Gulf Rapid Reef Assessment (AGRRA) protocol. Based on their field observations, students assess the validity of indicator species for reef health, the effects of diver tourism, marine species interactions, the impact of coral diseases and many other issues related to marine natural resource harvesting, conservation and monitoring.



Field Trips, Lectures and Exercises

Examples include:

- Visual assessment of queen conch populations.
- Visual assessment of coral reef fish populations.
- Fish, seagrass and mangrove identification.
- Zoning for multiple use in a marine protected area.
- Using GIS to assess habitat types for policy making.

Center Contributions

- Lobster, conch and finfish stock levels assessment, which have provided important information for government agencies.
- Natural resource workshop with the DECR and the National Park Service to provide TCI government workers with educational training about coral reefs, lobster biology, marine fishes and turtles, sharks, whales and navigation.
- Working with the DECR, National Park Service and local businesses to develop a protocol for coral reef monitoring and to share data about queen conch distribution.
- Hosting or supporting public forums and activities attended by government officials and community members to facilitate communal problem solving.
- Applying baseline data collected with the AGRRA protocol survey to examine reef health trends, species interactions and impacts of coral diseases.

Student Directed Research Projects

Examples include:

- Herbivorous reef fish: a comprehensive evaluation of density and biomass.
- AGRRA for reefs inside and outside Admiral Cockburn Land and Sea National Park.
- Population size assessment of potentially commercial finfish species around South Caicos.
- Best practices zonations and utilization of National Parks' resources in TCI.
- Queen conch dispersal from nursery grounds: implications for designing no-take fishing reserves.
- Bonefish protection on the Caicos Bank in Bell Sound Nature Reserve.
- Spiny lobster assessment within the Caicos Bank.

Connecting with the Local Community

Our program in TCI is oriented toward helping the community conserve its natural resources and develop sustainably. And close connections with the local community help establish SFS as a trusted and respected resource. Students quickly become involved with the community, spending time with local residents, fishermen and resource managers. Some community activities include:



- School volunteer projects such as tutoring, working with high school Science and Math Clubs.
- Hosting SEA DAY at our field station to introduce elementary students to the marine environment.
- Weekly soccer and basketball matches, which attract enthusiastic crowds, as SFS teams challenge local teams (usually unsuccessfully) for the coveted tournament trophy.

SCUBA Certification

It is not necessary to use SCUBA to participate in our program. However, if you intend to use SCUBA you must be certified before arrival. Divers and snorkelers must bring their own SCUBA and snorkeling equipment. Weights and tanks may be rented on-site.

Our Field Station on South Caicos

The Center for Marine Resource Studies, located just steps from our ocean laboratory, is adjacent to Cockburn Harbor, a town of about 1,000 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.

"I gained incredibly valuable research and field skills—most importantly, it reaffirmed my love and passion for my field of study."

Semester Program Dates:

Spring 2004:

February 2-May 7

Fall 2004:

September 13-December 16

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

BI/EE (NS) 373 Tropical Marine Ecology

EE (NS) 374 Principles of Resource Management

EE (SS) 302 Environmental Policy and Socioeconomic Values

EE 491 or 492 Directed Research

Please see Page 28 for course descriptions.

semester course descriptions

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.

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 inter-relationships 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) 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.

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 (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 (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.

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 (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 sociocultural 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 (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 homestay- 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.

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)

Summer Courses

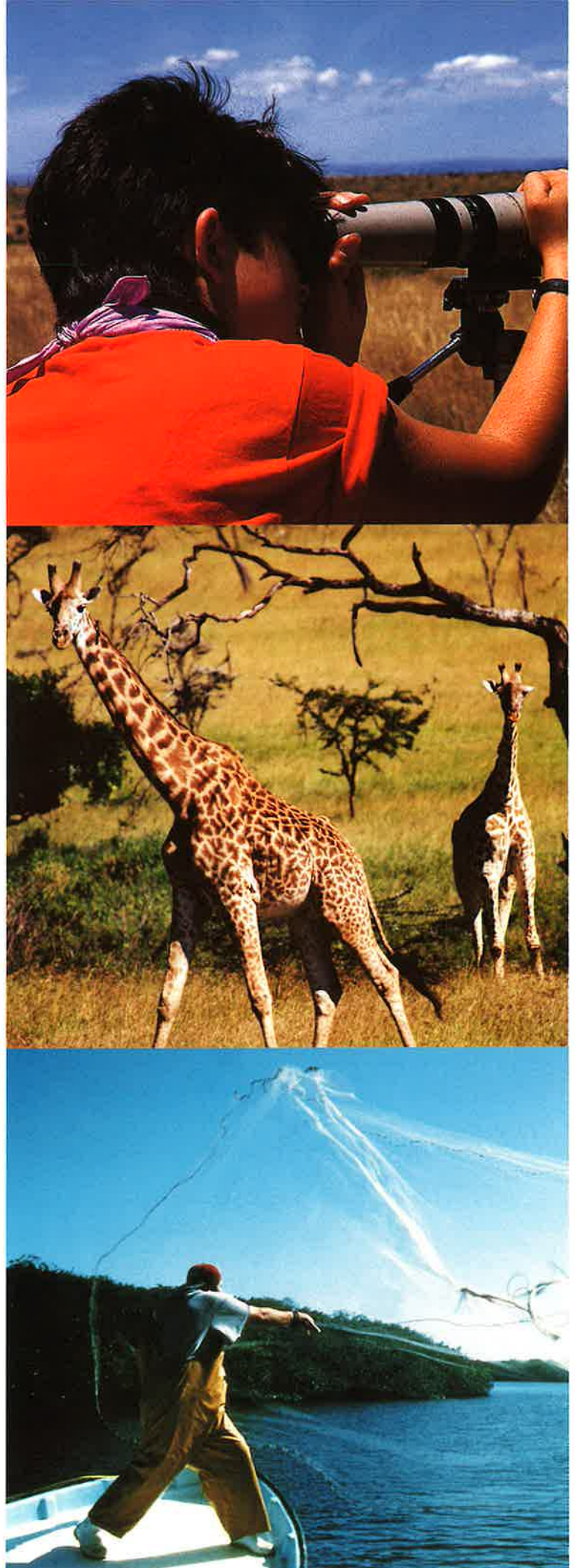
EE(NS) 355 Tropical Reforestation includes a wide range of lectures and hands-on field activities which will concentrate on developing management recommendations for reforestation practices on the Tablelands. We will explore the ecological roles, environmental services, and economic benefits of tropical rainforests. We will also look at the structure and function of Australian tropical rainforests and the roles that humans have played and are playing in current forest dynamics. From this point, we will examine reforestation applications on the Tablelands: the goals, the techniques, the successes, and the failures. Finally we will develop and maintain an actual rainforest restoration project.

EE (NS)352 Alternative Strategies for Sustaining Tropical Ecosystems provides students with practical field skills necessary to develop and participate in on-going, long-term, community and tropical ecosystem-based research projects. In this course, 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.

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. We will then compare the potential benefits of utilizing wildlife with alternative land-use options such as agriculture.

EE (NS) 356 Coastal Wetlands: Preserving Coastal Diversity exposes students to the relationship between the decline in biodiversity and the health of the Magdalena bay ecosystem. In this course, we will identify the most critically threatened areas in Bahía Magdalena as the essential first step in designing a strategy for protecting these resources. Lectures and field exercises will cover topics such as 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, which uses Bahía Magdalena for both breeding and feeding habitat.

EE (NS) 351 Marine Parks Management will focus on lectures, field exercises and other activities that enable us to understand how the Caicos Bank ecosystem works, it's 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 towards developing marine parks policy, management plans, and innovation and technology transfer to assist in the management of marine protected areas.



summer programs



australia

mexico

turks & caicos islands

costa rica

kenya

Summer Programs

SFS offers 30-day summer programs combining lectures with field exercises, exposure to field research and field trips. Like SFS semester programs, summer courses are high-quality interdisciplinary academic programs offered for college credit. Our classrooms include coral reefs, rainforests and African savannas; our research ranges from sea turtle conservation to rainforest restoration.

Students in summer programs assist our faculty in conducting research designed to support local communities in natural resource management decision-making. The work conducted by SFS faculty and students has the potential of making a positive difference in the lives of individuals in the areas in which we work. In return, students can explore potential academic and career choices while developing problem assessment and data gathering skills.

Each course carries four semester college-level credits in Environmental Studies. In some cases, the summer course may fulfill a university's field-study requirement. There are no course pre-requisites for summer courses, and programs are open to students from academic backgrounds ranging from environmental studies and biology to arts and languages. The majority of summer participants are college undergraduates, but motivated high-school seniors and recent college graduates may also participate.



costa rica

Sustaining Tropical Ecosystems

Costa Rica's landscape is as varied as it is beautiful. Its cloud forests and rainforests are home to monkeys, sloths, jaguars and exotic birds. Dry forests, mountain plains and fields of coffee, bananas and pineapples help complete this stunning mosaic. Costa Rica has a long history of preservation and has developed an extensive national park system. However, with large-scale agriculture still playing a vital role in Costa Rica's economy, it is clear that parks may not be enough to sustain this incredible biodiversity. Costa Rica struggles to balance environmental protection with the economic needs of its people. It is crucial that effective alternatives and strategies are developed to ensure long-term sustainability.



summer program

Project Focus

Developing Strategies for Sustaining Tropical Ecosystems

In our search for viable management strategies, we will examine issues of applied tropical ecology, ecotourism and protected area management. We will work very closely with members of the local community, hearing from experts on federal protection schemes and the operation of privately owned reserves and local communities surrounding protected areas. Using data collected during field work, students will examine the challenges and opportunities for maximizing effectiveness in protecting natural resources and conserving biodiversity in Costa Rica.

Field Trips, Exercises and Lectures

- Studying the incredible tropical ecology and assessing ecotourism efforts of several national parks, including expeditions to Braulio Carillo, the most extensive rainforest national park in the country.
- Evaluating and comparing the efforts of private reserves like the Monteverde Cloud Forest Preserve and the Eternal Children Rainforest, home to jaguars, ocelots and quetzals.
- Visits to Volcan Poas, the second largest volcano crater in the world to study parks and people relations and develop environmental education programs.
- Monitoring biodiversity in forested versus non-forested areas.

Connecting with the Local Community

Our program in Costa Rica is oriented toward helping the community conserve its natural resources and develop sustainably. And close connections with the local community help establish SFS as a trusted and respected resource. SFS students enjoy a warm welcome into the community of Atenas, with opportunities



to interview residents during academic projects, practice Spanish, learn about Costa Rican culture and participate in community service projects. Students also enjoy joining local sporting events and spending time socializing at local cafes.

Summer Program Dates:

Session I: June 7 - July 6

Session II: July 12- August 10

Departure Point:

San Jose, Costa Rica

Course Number:

EE(NS) 352 Alternative Strategies for Sustaining Tropical Ecosystems



mexico

Conserving Coastal Diversity

Bahía Magdalena is an area of profound physical beauty. It is among the largest remaining intact coastal wetland/lagoon systems along the Pacific coast of the Americas. Habitat diversity in the Bay is high, including extensive sea grass beds, mangrove stands and intertidal sand and mud-flats. On the Pacific Ocean side of the Bay, there are rocky shores along the coastlines of the barrier islands of Magdalena and Margarita where large populations of sea lions are common sights. The many habitats of the Bay and the high productivity of the water produce a high diversity of marine life. The Bay is also an important feeding ground and nursery area for several species of endangered sea turtles, and over 100 species of migratory and resident birds use the Bay at various times of the year.



summer program

Project Focus

Conservation of Marine Turtles in Bahía Magdalena

Bahía Magdalena has played an important role as a refuge (nursery and feeding ground) for several sea turtle populations, including Loggerheads, Olive Ridleys and the rare Hawksbill turtles. The endangered East Pacific Green turtle uses the Bay as nursery area and feeding habitat. These turtles have a high degree of both natural and human-induced mortality. Despite strong regulations against their exploitation, Green turtles are still frequently poached and caught as by-catch in the harvesting of other marine resources. A complex interaction of community social and cultural factors, lack of protected area sanctuaries, lack of enforcement of existing regulations and economic hardship in local communities has led to the continued exploitation and the rapid decline of sea turtle populations throughout Mexico.

We will examine the ecological, societal and economic issues surrounding sea turtles in Bahía Magdalena. Students will be exposed to a variety of environmental issues such as the over-harvesting of fisheries resources; a local cannery that is polluting the rich mudflats and seagrass beds; ranchers who are cutting too many mangroves for fence-posts; and poachers who continue to illegally take protected sea turtles. Using data collected during field work, our goal is to design protection and management strategies for the sea turtles in Bahía Magdalena.

Field Trips, Exercises and Lectures

- Camping trip to the off-shore Pacific island of Isla Magdalena to experience the incredible ecology of the Bay.
- Sea turtle population assessment by collecting biological data on live and stranded turtles in the Bay.
- Evaluating the social and economic importance of sea turtles by surveying local fishers and townspeople.

Connecting with the Local Community

Our program in Mexico is oriented toward helping the community conserve its natural resources and develop sustainably. And close connections with the local community help establish SFS as a trusted and respected resource. SFS students enjoy a warm welcome into the community, with opportunities to interview residents, practice Spanish, learn about Mexican culture and participate in community service projects. Students also enjoy joining local sporting events and spending time socializing at taquerias and clubs.

Summer Program Dates:

Session I: June 7 - July 6

Session II: July 12- August 10

Departure Point:

La Paz, Baja California Sur, Mexico

Course Number:

EE(NS) 356 Coastal Wetlands: Preserving Coastal Diversity



australia

Tropical Reforestation

Australia's spectacular tropical rainforests are home to primitive plant species, birds and marsupials found nowhere else in the world. Giant strangler figs standing 70 feet tall, green king parrots, sulfur crested cockatoos, rainbow lorikeets, bandicoots, musky rat kangaroos and tree kangaroos are just a few of the species filling these forests with color and sound. The rainforests of northeastern Queensland preserve millions of years of evolutionary history. Parts of Queensland were once covered in rainforests, but agriculture, ranching, mining and logging have destroyed and disrupted rainforest habitat, with only a narrow belt remaining along the eastern coast. Australia moved to confront these threats faster than most tropical countries, and protected most of its remaining forests under World Heritage designation in 1989.



summer program

Project Focus

Reforestation of the Atherton Tableland

Although the rainforests of the Atherton Tableland are protected as World Heritage sites, the pressures on them continue. The local community struggles with differing views about how these forests should be used and managed. Several local groups have focused on the concept of rainforest reforestation. The basic premises of reforestation, and the benefits they promise for endangered wildlife species such as the cassowary and tree kangaroo, seem self-evident. Yet the realities of rainforest restoration are much more complex. Rainforest ecosystems are incredibly diverse, characterized by a slow rate of regeneration. It is not clear if degraded forest can ever be returned to its original state. In addition, given the differing views of the local community, any strategies for reforestation must be shown to have economic benefits if they are to be viable in the long term.

Lectures addressing relevant topics in conservation biology, forest ecology and tropical resource management provide the basis for our fieldwork. Students will monitor past reforestation efforts and assess specific reforestation and site management strategies. The culminating summer project will focus on one or more of the following themes: ecological development, maintenance experiment costs and seedling recruitment and growth, or restoration planning and management.

Field Trips, Exercises and Lectures

- Chillago: camp in the Outback and explore caves, rock formations and eucalypt forests in a region once covered in rainforest. At Dimbulla we learn first hand about the history of the Aborigines, and examine land management issues with members of this community.
- Trip to past reforestation plots around the tablelands to assess the success of various tree species and planting techniques.
- Field exercises in surrounding World Heritage rainforest, an area containing volcanic crater lakes, trees and wildlife.

Connecting with the Local Community

Conservation, resource use and rainforest restoration are extremely important to the local community. Students will have the opportunity to interact with farmers, resource managers, and members of community groups to help address these issues. Students also enjoy socializing with the local community by participating in sporting events and visiting local historic pubs.

Summer Program Dates:

Session I: June 7 - July 6

Session II: July 12 - August 10

Departure Point:

Cairns, North Queensland Australia

Course Number:

EE(NS) 355 Tropical Reforestation



turks & caicos

Marine Parks Management

The reefs of South Caicos harbor an incredible array of marine life. These marine resources have proven to be critically important for the people of this island. The reefs provide excellent habitat for spiny lobster and queen conch, whose harvest provides the mainstay of the South Caicos economy. Increasingly, these reefs also attract tourists who come to view coral, spotted eagle rays, barracuda, sea turtles, grouper and sharks through water renowned for its outstanding clarity. The importance of these reefs has not guaranteed their survival, however, and the reefs face



pollution, dredging, dumping and damage from boats and divers. In 1992 the local government established a park system, which included marine parks, to preserve important natural areas, conserve economically important species and promote ecotourism. The management of these parks presents several challenges. The need for preservation and economic growth go hand-in-hand on South Caicos, and data are needed to determine the role of marine parks in stimulating the local economy.

summer program

Project Focus:

Assessing the Role of Marine Parks for South Caicos Island

Students will explore the effectiveness of marine parks in protecting biodiversity and critical habitats, enhancing stocks of queen conch, spiny lobster, and other commercially important species, and contributing effectively to the socio-economic sustainability of the local community. We will interact with and support the work of our clients and stakeholders, who range from local fishermen to members of key government agencies. Our goal is to collect data from the field, which may lead to policy recommendations, marine parks management plans and community projects.

Field Trips, Exercises and Lectures

The spectacular reefs and waters of South Caicos will serve as the laboratory for most of our field work. Students will snorkel or SCUBA, and gain valuable experience in the use of transects, techniques for population sampling and statistical analysis. Potential research sites and trips include: East Harbour Lobster and Conch Reserve (EHLCR); Bell Sound Nature Reserve; Fish Cay; Tucker's Point Reef Shark Alley; Long Cay; Dove Cay; The Point of Admirals Aquarium and a mangrove island.



Connecting with the Local Community

Our program in South Caicos is oriented toward helping the community conserve its natural resources and develop sustainably. With our field station located within the community of South Caicos, SFS students enjoy a warm welcome into the community. There are opportunities to interview fishermen and other residents during academic projects, learn about the local culture and participate in sporting events and community service projects.

Summer Program Dates:

Session I: June 7 - July 6

Session II: July 12- August 10

Departure Point:

South Caicos Island, TCI, BWI

Course Number:

EE(NS) 351 Marine Parks Management

admission requirements and instructions

At SFS, the most successful teams are comprised of students who are motivated, intellectually curious, enthusiastic, flexible, compassionate, socially concerned and ready to take advantage of our unique educational opportunities. Programs may fill quickly, so we encourage you to apply early to ensure admission into the program of your choice. Applications are reviewed on a year-round, rolling basis.

The SFS program will likely be very different from your traditional academic experience. We are setting off together on a journey and we ask you to consider yourself as part of a crew, not simply a passenger. We expect you to take a proactive role in all aspects of your experience including scheduling activities, choosing research projects, managing risk and facilitating the day-to-day operation of the field station.

Admission to SFS is open to qualified students without regard to sex, race, sexual orientation, color, national or ethnic origin, economic status, physical or mental disability, or other protected status.

Admission Requirements and Pre-requisites

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 preferably 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. Special note: A portion of Costa Rica semester program spaces are reserved for applicants from University of Michigan, Allegheny, Colby, and Dickinson Colleges. These applicants should consult their Environmental Studies Department for application information.*

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

Application Instructions

The School for Field Studies accepts and reviews complete applications for admission to all programs on a rolling basis. While there is no final admissions deadline, we do encourage you to apply early as some programs do fill quickly. Waiting lists are maintained for all programs that do fill early. Before applying, please be sure you understand the program components and pre-requisites and have carefully read the relevant information for the program to which you are applying.

Your complete application for admission includes:

- SFS Application for Admission form
- Non-refundable application fee of \$45 (credit card or check made payable to The School for Field Studies)
- References: submit two (2) completed SFS Reference Forms.
 - SFS Academic Reference Form** completed by a teacher, professor or academic advisor who is well acquainted with your current academic performance.
 - SFS Character Reference Form** completed by someone who knows you well. This reference is often completed by 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 minimum, both individuals providing references must complete the SFS Reference Form.

- 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.

Physical Examination and Medical Insurance

All acceptances are contingent upon medical approval. You must present a completed SFS Medical Form signed by a qualified medical professional within two weeks of acceptance. Please refer to the SFS website (www.fieldstudies.org) for a copy of the form. Students with late medical forms may forfeit their space.

All medical forms will be reviewed by the SFS Medical Review Team. 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 and a signed medical release.

Disability Information

Students with disabilities requesting accommodations are responsible for notifying SFS of their disability and any special needs they have within one week of acceptance. Students with physical disabilities should direct their correspondence to the SFS Safety Director and students with learning disabilities should direct their correspondence to the SFS Academic Dean. Please be aware that the level of accessibility, services, and accommodations to which you may have access to at your home campus may not be available overseas. Please refer to the SFS Academic handbook for more information.

Dietary Restrictions

If you have any special dietary restrictions, please contact the SFS Safety Director within one week of acceptance and document the restrictions on your SFS medical form.

** Students with dietary preferences (vegetarian, vegan, etc.) should discuss these with your Admissions Counselor.*

Tuition, Fees and Deposits

The School for Field Studies meets the expenses of our programs through a combination of program revenue, grants and donations. Our program fees cover room and board, program-related ground transportation and park entrance fees, field equipment, supplies, orientation and pre- and post-program advisory services. Total Program Cost does not include transportation to and from the program.

Full tuition is due sixty (60) days prior to program commencement. You will not be allowed to participate in the program with an outstanding tuition balance. Note: The tuition fees listed in this catalogue are for Fall 2003 through Summer 2004. New tuition and program fees for Fall 2004 will be announced in March 2004.

In addition to tuition charges, please also consider the following to determine the total cost of your participation:

- Travel arrangements.
- Clothing and equipment.
- Physical examination, immunizations and medical insurance.
- Personal expenses (semester program break).
- Passport and Visa.

** You must have a passport that is valid for at least six months after the program ends.*

Please return your complete application materials in one envelope to the following address:
The School for Field Studies • 10 Federal Street • Salem, MA 01970

**Please be sure to secure permission to participate from your school, if necessary.*

tuition, financial aid and 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 12,000 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. For this reason, SFS has developed an array of financial resources to support our students. These resources include:

Andreas Family Fund Scholarships

SFS is pleased to announce a new scholarship initiative. Through the generosity of the Andreas family, we are launching The Andreas Family Scholarship Fund. This fund will initially focus on providing financial aid to students in U.S. public colleges, who are academically eligible but may not be able to afford to participate in an SFS program. The fund's goal is to reduce the financial barriers to participation and broaden the range of students who participate in SFS programs. Application deadlines are October 15 for Spring semester programs; March 15th for Fall semester programs.

New Low Interest loans

This new 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.

SFS Scholarships

This fund is supported by the generous contributions of alumni, donors and foundations and is designed to make the SFS experience available to students facing financial challenges. SFS Scholarship funds are awarded in conjunction with a zero interest loan.

Zero Interest Loans

Created through the generosity of the Merck Family Foundation SFS offers this fund to supplement SFS Scholarship awards. Semester loans must be repaid within two years and summer loans within one year of program completion.

**SFS Financial Aid resources are subject to the availability of funds.*

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 in order to participate we strongly encourage you to complete an SFS Financial Aid Application as soon as possible. Financial Aid Applications are reviewed following acceptance. For an application or more information on how to qualify for assistance, please call the SFS Admissions Office at 1.800.989.4418.

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 us and we will do our best to assist you.

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

Refund Policies

Semester

Refund Policy for Semester Program Costs

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 and registration fee).
- Withdrawal 60-31 days prior to the first day of the program = 50% refund of total program cost (less deposit and registration fee).
- Withdrawal 30 days prior - 14 days after the start of the program = 25% refund of total program cost (less deposit and registration fee).
- 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 and registration fees are refundable if withdrawal is less than 10 days following financial aid offer. (You must complete and return the financial aid application within 10 days of acceptance to qualify for refund status on the registration fee and deposit).

Application fees are non-refundable.

Summer

Refund Policy for Summer Program Costs

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 and registration fee).
- Withdrawal 21 - 0 days prior to the start of the program = 50% refund of total program cost (less deposit and registration fee).
- Withdrawal after the program starts = NO REFUND.

Financial aid candidates: deposits and registration fees are refundable if withdrawal is less than 10 days following financial aid offer.

Application fees are non-refundable.

Summer Costs 2004

Program	Tuition	Program Fees	Total Program Cost
Kenya	\$2,610	\$1,385	\$3,995
Australia	\$2,610	\$1,200	\$3,810
Turks & Caicos	\$2,610	\$950	\$3,560
Costa Rica	\$2,610	\$800	\$3,410
Mexico	\$2,610	\$570	\$3,180

**All summer programs have an additional registration fee of \$100.*

Payment of \$450 (non-refundable \$350 deposit and \$100 non-refundable registration fee) is due no later than 10 days after acceptance in order to reserve a place in the program.

Semester Costs 2003-2004

Program	Tuition	Program Fees	Total Program Cost
Kenya	\$9,975	\$3,975	\$13,950
Australia	\$9,975	\$3,695	\$13,670
Turks & Caicos	\$9,975	\$3,210	\$13,185
Costa Rica	\$9,975	\$3,210	\$13,185
Mexico	\$9,975	\$3,335	\$13,310

**All semester programs have an additional registration fee of \$150.*

Payment of \$650 (non-refundable \$500 deposit and \$150 non-refundable registration fee) is due no later than 10 days after acceptance in order to reserve a place in the program.

expectations and responsibilities

Student Conduct

You are expected to conduct yourself in a mature and responsible manner. The School for Field Studies (SFS) 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. Should such a decision be made, SFS will notify your guardians and return you to the point of program departure, at which time any and all responsibility on the part of SFS will cease. Students who are expelled or depart early from the program will be withdrawn from all courses and receive no 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.

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.

Program Changes

SFS operates in a variety of environments. As a result, there are various factors that may have an affect 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.



"Without a vision nothing is possible.
But young people have imagination and
vision, and imagination is what will save
us. That's all it takes, a vision, even
though it seems impossible to attain.
The impossible is exactly what's required
to solve our environmental problems."

— Christopher Mares
Listening to the Land

