

2000/2001 COURSE CATALOGUE

The SCHOOL for FIELD STUDIES

ENVIRONMENTAL
FIELD STUDIES ABROAD

ECOLOGY



RESOURCE MANAGEMENT



ECONOMICS

Semester & Summer
Environmental Field Studies
— Programs —

Marine Resource Studies – BRITISH WEST INDIES

Rainforest Studies – AUSTRALIA

Rainforest & Fisheries Studies – PACIFIC NORTHWEST CANADA

Coastal Studies – BAJA, MEXICO

Sustainable Development Studies – COSTA RICA

Wildlife Management Studies – KENYA

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The World Is Your Classroom

Environmental Field Studies Abroad

Teaching children
to swim in South Caicos
so they can explore
their marine environment.



Planting trees to
restore wildlife
corridors in
Australia.



Understanding
how wildlife
impacts Kenyan
communities.



Working with First Nation groups
to preserve Vancouver Island's
threatened forests and streams.



Tending a
demonstration
garden in
Costa Rica.

Collecting data
to address threats
to biodiversity in
Mexico's Bahia
Magdalena.

The Mission

*of The School for Field Studies is to provide
motivated young people with an excellent practical
education in environmental studies,
enabling them to become more
environmentally literate and aware
and to make immediate and future contributions
to the sustainable management
of the world's natural resources.*

THE SCHOOL FOR FIELD STUDIES

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SFS is the country's oldest and largest educational institution exclusively dedicated to teaching and engaging undergraduates in environmental problem solving. Since our founding in 1980, over 9,500 college and high school students, with a variety of academic interests, have conducted hands-on field work in SFS programs around the world.

Students in fall and spring semester programs and intense 30 day summer courses at the six SFS field study centers earn college credit for participating in real-life field studies of challenging environmental dilemmas. Critical issues addressed by SFS teams include preserving entire ecosystems or individual species, balancing economic development and conservation, and finding ways to manage and maintain wildlife, marine and agricultural resources.



THE SCHOOL FOR FIELD STUDIES

SFS CENTERS AND PROGRAMS

Fall and Spring Semester and 30 Day Summer Programs are offered at every Center.

PRIMARY TOPICS ADDRESSED AT THE CENTER INCLUDE:

The Center for Marine Resource Studies – BRITISH WEST INDIES

Addressing: fisheries, coral reef ecology, Caribbean studies, resource economics, community development, Environmental Impact Assessment, marine parks, ecotourism.

The Center for Rainforest Studies – AUSTRALIA

Addressing: rainforest ecology, biodiversity, conservation biology, aboriginal issues, ecological economics, restoration forestry, landscape ecology, watershed management.

The Center for Coastal Studies – BAJA, MEXICO

Addressing: fisheries management, community development, Latin American studies, coastal oceanography, eco-toxicology, resource economics, marine biology, sea turtle conservation, ecotourism, wetlands management.

The Center for Coastal Rainforest and Fisheries Studies – PACIFIC NORTHWEST CANADA

Addressing: forestry, fisheries, Native American studies, restoration ecology, environmental ethics, community ecology, watershed management, resource economics, coastal marine processes.

The Center for Sustainable Development Studies – COSTA RICA

Addressing: sustainable development, ecological economics, tropical ecology, agro-forestry, Latin American studies, community development, land-use planning, watershed management, ethnobotany.

The Center for Wildlife Management Studies – KENYA

Addressing: wildlife ecology, rangeland management, African studies, resource economics, community development, population ecology, ecotourism, landscape ecology.

What We Do

Our goal is to enable you to come away from your SFS experience with an understanding of the complexity and inter-relatedness of environmental issues, as well as an increased commitment and new skills to help improve the environment and the lives of people dependent on that environment.

Live And Learn Where You Can Make A Difference

To achieve this goal, all SFS programs include the following elements:

1. First and foremost, we are working on real problems for real people.

All SFS programs are based in communities that are dependent on their natural resources and that have requested SFS assistance in addressing their resource use issues. By establishing our centers in these communities, we have a stable base from which we are able to undertake longterm projects. Staff can develop strong relationships with the local community and partnerships with regional management agencies. And because of these ties and partnerships, chances are high that our results will be used and our efforts will make a difference.

2. SFS approaches environmental problem-solving from an interdisciplinary perspective.

All SFS programs investigate real local environmental problems in the form of case studies. Each problem is examined from a number of disciplinary perspectives (usually ecology, resource management, economics, applied anthropology, and political science) as we seek sustainable ways to utilize natural resources. Faculty lectures and readings provide the theoretical information needed to understand the problems raised by the cases. Practical skills are gained through extensive field exercises. Guest lectures by individuals who are intimately involved in the issue under study provide a rich (and, at times, conflicting) context that is typical of major social problems.



Case studies require you to make a decision, usually with less than complete data and less than perfect solutions. In South Caicos, many residents are economically dependent on the conch and lobster fisheries. Our case study on the effectiveness of catch and size quotas as a way to manage the fisheries challenges you to reconcile local economic needs with national and international conservation interests.



Several projects at the Center for Coastal Studies in Mexico address the threatened blue crab fishery. Because directed research projects are chosen from a list of projects requested by local clients, you know someone is interested in and will use your work.



SFS makes a significant investment in developing and supporting Center facilities. This includes acquiring housing, classrooms, laboratories, libraries, computers, vehicles and research equipment. Whenever possible, Centers employ conservation measures such as solar energy, organic farming, composting, and recycling to serve as "green models" for students and the community.

3. Hands-on participation in field research enables students to make an immediate contribution to the improvement of a local environmental issue while putting theories learned in the classroom into practice.

We don't seek to promote research for its own sake. However, first-rate applied research in the form of practical reports to local resource managers is an essential part of our educational process. You will design and carry out a field project related to the current goals of the Center or program. These projects usually last for more than half the program, culminating in presentations to both the local community and the outside community of scientists, researchers and representatives from SFS partners and clients.



In South Caicos, SFS students started a science club at the High School. Club members, in turn, helped our students stage a "SEA DAY", when island children come to the Center to learn more about their surrounding ocean environment.

4. You are directly involved in the local community through field and service projects.

Engaging in environmentally related community service projects enables students to get to know local residents on a personal, informal level that often results in memorable friendships. Through these relationships you have an opportunity to understand and appreciate local perspectives regarding resource use that are critical to identifying solutions that meet the needs of the community.

5. You participate on a problem-solving team where we expect and encourage you to take a proactive role in all aspects of your education.

We seek to put some control of - and responsibility for - your educational process in your hands. Your responsibility to learn in an SFS program extends beyond academic study to many aspects of group dynamics, community relationships and daily living. You will be challenged in many ways during your SFS experience. Mastering these challenges requires flexibility and teamwork, and you will likely develop technical, analytical and risk management skills that are useful long after you have left the field.



Mastering the daily challenges of living with a large group in a rustic setting fosters problem solving, teamwork and risk management skills increasingly sought and valued by employers.

Working where we make a difference . . .

Luis Carmona Araya, Technical Forestry Official for MINAE (Secretariat for the Environment) in Atenas, Costa Rica, talks about his relationship with SFS.

"We support each other which is the way things should work. Environmental education has been developed in coordination with the SFS program. The recycling program has inspired questions about trash dumps and I have used the Center as a clearinghouse for information and education. The Center has supported the establishment of a day to celebrate the environment. We coordinate on regulations and team up with the Center's resources to help execute plans and procedures. The Center has helped to develop reforestation programs that coordinate not only the type of species but also the locations in which they are needed. Research support and data from the directed research projects has been presented to me and I can then present it to the main office of MINAE. The students' Directed Research projects have also given me a better understanding of the resources vs. social needs in the protected zones including a map of land use and soil capacity. Water quality research conducted by the Center has given me data to support policies. The Center also supported the creation of greenhouses for use in protected areas. Finally, there has been a cooperative effort to monitor the protected zones. It is important for me to continue this coordination in order to fulfill my activities as a government official."



Who Goes On An SFS Program

Each SFS team consists of a center director, three full-time faculty and additional staff, and an average of 30 students. Each year students come to SFS from over 150 public and private high schools, colleges, and universities.

(For a partial list of home schools please see page 37). They major in

everything from science to economics to liberal arts. They

come from across North America and from many other countries.

Most semester participants are college sophomores, juniors and seniors; summer participants range in age from 16 to the mid-twenties. Approximately one in three SFS participants receives financial aid from SFS to enable their participation; many students access federal aid programs and assistance from their home schools.

Please see page 38 or call the SFS Admissions Office at 1-800-989-4418 for financial aid information.

ALUMNI COUNSELORS

A network of SFS alumni are ready and eager to share their experiences with you.

To get a first-hand, student perspective please call the SFS Admissions Office at 1-800-989-4418.

We will put you in touch with an alumnus from your region, school or the program(s) you are considering.

Work Closely With People Who Share Similar Goals And Interests...

Although SFS students come from diverse backgrounds, they all share a commitment to learning, a concern for the environment, and a desire to make a real contribution to the future of our planet.



"The students were some of the most dedicated people I've ever met. Their commitment to learn and help by becoming part of the global community enriched my own learning experience. The enthusiasm of others sparked my own interests and everyone's drive to learn in and out of the classroom created an environment where it was safe to ask questions and learn as much as possible. Socially, we were all very different and had different backgrounds. This was refreshing and taught me about life outside of science. Everyone brought their own insights and this heightened the experience for everyone."

E. Rae LeGrone,
Charlotte, NC -
University of North Carolina



“From the beginning I was impressed with the intelligence and open-mindedness of my fellow students; everyone seemed to be academically and personally motivated to get the most out of this experience. We had an eclectic group of students who were willing to share their experiences and ideas.”

Zachry Guido,
Chester, VT -
Lafayette College



“Our group consisted of students from all across America. Each of us differed in our personality traits, background and approaches to problem-solving. And each had a unique reason for being there: some for science credit, some to enjoy the wilderness and others for the pure sake of learning. Instead of dividing us our differences united us and nobody was afraid to admit his or her weaknesses or tempted to ridicule another's. Sitting around the campfire, I felt I belonged to something greater than myself.”

Anne Yereniuk,
Longmeadow, MA --
Bryn Mawr College

SFS offers you a mutually beneficial experience. You may come away with memorable friendships, an appreciation of a different culture, first-hand knowledge of a unique ecosystem, transferable career skills and academic credit. You'll leave behind knowledge and research that enables a local community to develop economically while sustainably managing the natural resources upon which they and our global community ultimately depend.

How You Can Benefit From SFS Participation...

- ◆ Live and study in an exotic and imperiled ecosystem;
- ◆ Travel and visit people and places most tourists never get to see;
- ◆ Gain hands-on field experience and analytical skills;
- ◆ Work with and learn from accomplished researchers and local experts;
- ◆ Experience a new culture as you work and develop friendships with local residents;
- ◆ Make a real contribution as you help solve local environmental problems.



“Over the past 12 years we have had students go on every SFS program and we have never had a student return and say “that was a mistake”. I see a tremendous boost in confidence in our SFS returnees, because they know they have a real expertise that is different from everyone else's. Their idealism is tempered with real-world knowledge. They know what they have done, why it matters and they are articulate in talking about it.

Is it worthwhile? If a student or parent asks me this, I cite case histories of students who have used their SFS experience to land jobs in environmental education, field biology positions, agency work, international employment and strong graduate programs. My point to them is that we have over and over seen the SFS experience become an investment that pays off.”

Dr. Janet Wright,
Professor of Biology,
Dickinson College

The following pages will provide you with numerous examples of how SFS staff and students have impacted local environmental issues and worked with local communities.

An SFS experience can also have a profound impact on the way you view the world and your place in it. These impacts extend far beyond daily impressions while you are in the field.



"Working on my SFS directed research project was the first time I actively solved an environmental problem instead of reading about someone else doing it. This was the first time I became aware of my own abilities and potential. I won a scholarship for my work on behalf of animals and the environment. The chairman of the committee was especially impressed with what I wrote about my SFS field experience in British Columbia."

Anne Yureniuk, Longmeadow, MA -
Bryn Mawr College

Impact The Environment, The Community, Your Future

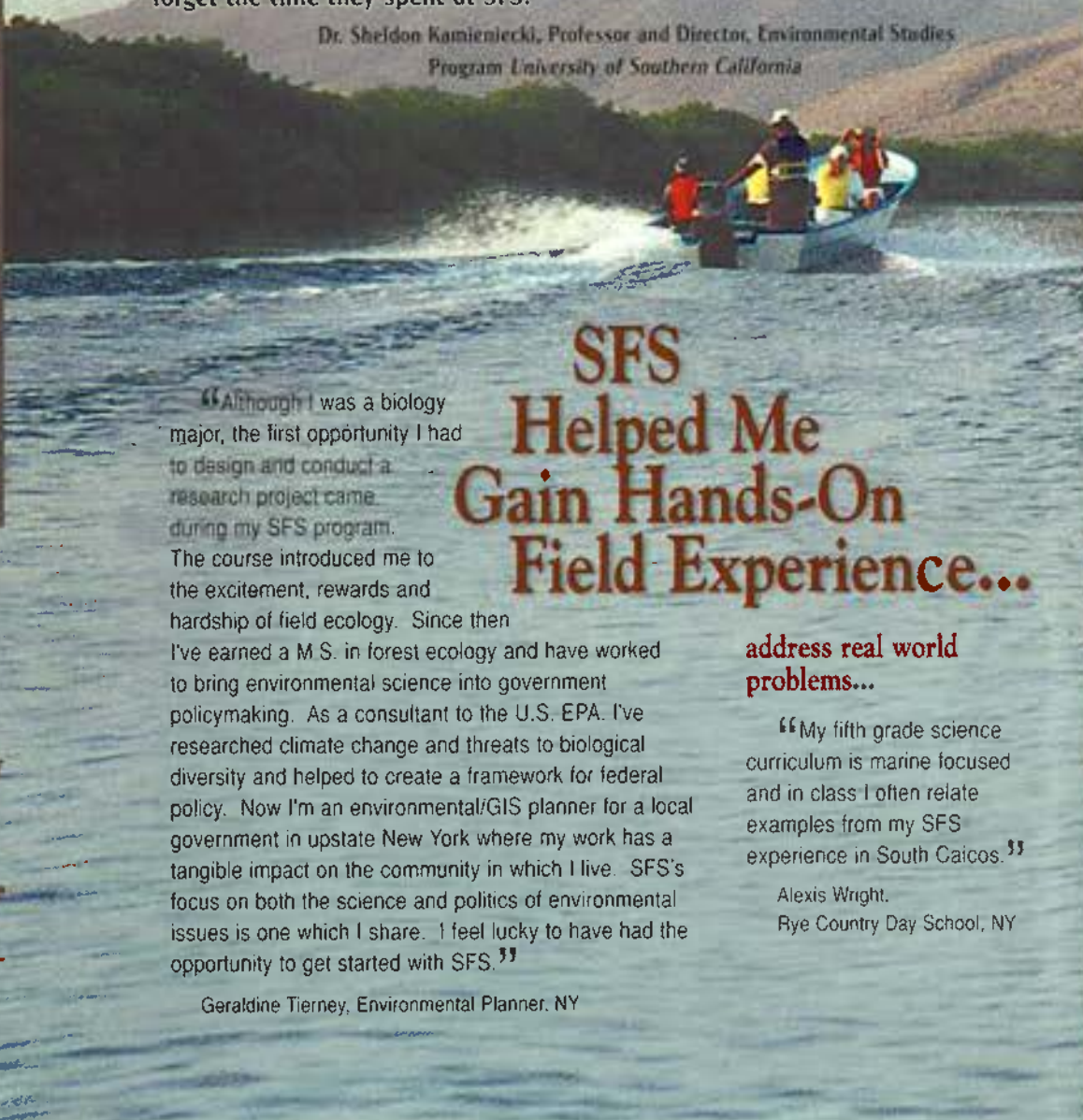


"SFS presents issues in their full social, cultural and environmental context and does an exceptional job of showing us the places that embody the problems and solutions."

Zackry Guido, Chester, VT -
Lafayette College

"While students can learn important concepts and theories about ecosystem maintenance in the classroom, the SFS program does an excellent job helping students develop direct links between these concepts and theories and actual efforts to conserve natural resources and protect the environment. SFS places particular emphasis on learning about the intricate connections between all the major elements of local ecosystems. The rigorous SFS program is unique in that it provides students with a real world laboratory in which to study central principles of sustainability. Admittedly, ten years from now students will forget 90% of the courses they took on campus yet they will never forget the time they spent at SFS."

Dr. Sheldon Kamieniecki, Professor and Director, Environmental Studies
Program University of Southern California



SFS Helped Me Gain Hands-On Field Experience...

"Although I was a biology major, the first opportunity I had to design and conduct a research project came during my SFS program."

The course introduced me to the excitement, rewards and hardship of field ecology. Since then I've earned a M.S. in forest ecology and have worked to bring environmental science into government policymaking. As a consultant to the U.S. EPA, I've researched climate change and threats to biological diversity and helped to create a framework for federal policy. Now I'm an environmental/GIS planner for a local government in upstate New York where my work has a tangible impact on the community in which I live. SFS's focus on both the science and politics of environmental issues is one which I share. I feel lucky to have had the opportunity to get started with SFS."

Geraldine Tierney, Environmental Planner, NY

**address real world
problems...**

"My fifth grade science curriculum is marine focused and in class I often relate examples from my SFS experience in South Caicos."

Alexis Wright,
Rye Country Day School, NY



"Being immersed in the environment was vital to our being able to learn about and discuss the environment. Lectures were given in the 'chumba' where one could look out at acacia trees and often see roaming ostrich or oryx. Lecturers often had to speak over the sound of vervet monkeys scampering across the roof. These weren't distractions, instead they made what we were studying seem all the more real and relevant."

Jana Macaleer, Trafford, PA - Palm Harbor High School



"Every time you walk the sandy road into town or start a conversation with one of the fishermen at the dock, you find yourself picking up little details and seeing how everything you learn really does apply to the community around you."

Molly McAllister,
Portland, OR -
Lewis and Clark College



Students in South Caicos designing and building experimental artificial lobster habitats. "Who knew that an unattractive, unaffectionate crustacean, such as a lobster, could be so fascinating!"

Amie Rennie, Fairport, NY -
St. Michael's College

develop personal confidence...

"Every day of my SFS experience I became more confident of my own abilities and more willing to undertake new challenges. I'm now working on a team that is developing policy recommendations to resolve major water problems in the Colorado River Basin. The value of my scientific training from SFS is obvious."

Dave Gold, Environmental Consultant, AZ

choose a career path...

"This program has really helped me focus the next few years of my life. From the contacts I made in the islands, I leave for a job teaching marine ecology in the Florida Keys at the end of the month. I'm sure the reference from my SFS faculty member was a major influence on their decision to hire me."

John Richardson, Bremerton, WA

develop analytical and research skills...

"I continue to do research - now in the jungle of Wall Street where I work in equity research. I find that my analyses of bulls and bears draws on many of the same creative and analytical skills I developed while studying ecology in Kenya."

Scott Johnson, Smith Barney Inc, New York, NY

learn how I can make a difference...

"In order to solve environmental problems and to be an effective researcher, you need to be in the field with people. SFS gave me guidance and taught me you can make a difference if you coordinate your skills with local knowledge."

Paco Ollervides,
Fulbright Scholar/Doctoral Candidate/
Cetacean Researcher,
Texas A&M University

Who Teaches SFS Programs

Learn from Experienced Faculty

Teaching you, providing you with the context and the knowledge and the skills to understand and address complex environmental issues, is the core of the SFS mission. We have designed the SFS program to be a guided experience, emphasizing teaching and mentoring and providing you with access to as much information and guidance as possible.

Every SFS Center is staffed with a Center Director and three full-time faculty (usually an ecologist, a resource manager and an ecological economist) who live on-site and are easily accessible to answer your questions or give you input. Additional support is provided by student affairs managers, interns, site managers and local support staff. This level of staffing provides students with a remarkably low student to faculty ratio (no higher than 10:1) and enables you to gain an interdisciplinary perspective on complex environmental issues. The teaching staff at each SFS Center have over 20 years of professional experience in the subjects and ecosystems we're studying - they know their stuff! These men and women are committed educators, selected for their interdisciplinary teaching and research approaches as well as their leadership qualities. They are successful practitioners in careers you may be considering and are the source of a wealth of information and advice.



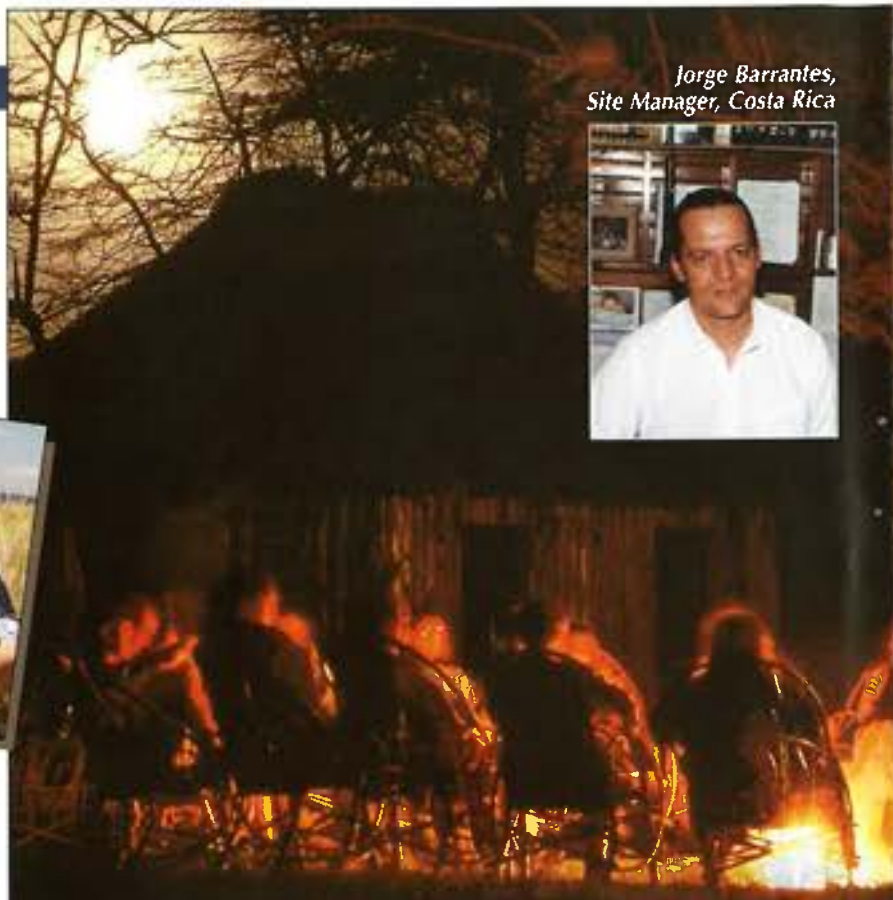
Sue Hamel, Student Affairs Manager, Center for Wildlife Management Studies



Salvador Garcia-Martinez, Mexico

An integral part of the SFS experience is the concept that students act "as crew, not passengers". Students are encouraged to

take responsibility for their academic, cultural and social growth. Every SFS center is staffed with a Student Affairs Manager (SAM) to assist students in these endeavors. Among many other tasks, SAMs coordinate volunteer and service opportunities in the local community and help students develop leadership skills. Included in these skills are the ability to recognize, analyze and manage risk. SAMs are supported by a full-time Risk Manager based at SFS Headquarters.



Jorge Barrantes, Site Manager, Costa Rica



teach (*tēch*) v.

1. To impart knowledge or skill.
2. To provide knowledge of.
3. To cause to learn by example or experience.

"Webster's Dictionary"



Susan Gardner, Baja, Mexico

"The faculty really impressed me. I saw such dedication to what they were doing that I almost felt guilty for only beginning to be part of the environmental problem-solving process now. But I didn't feel guilty, I felt inspired. Those faculty were some of the most

experienced and intelligent people I've ever known. They made me want to know and understand everything around me."

William Jernigan,
Rock Hill, CS -
Winthrop University

Faculty Profiles

Barbara Heidenreich

Center Director

Center for Coastal Rainforest and Fisheries Studies



Barbara received an honors degree in Geography from York University and an M.A. in Economic Geography from McMaster University. After

receiving a second Masters in International and Public Affairs from Columbia University, she spent three years as an investment analyst in Brazil. She spent seven years as a regional planner before heading to Labrador as an administrative consultant to an Inuit association. At Trent University, she helped develop a new program in Native Management and Economic Development while also teaching environmental and resource studies. After serving as Director of the Canadian Institute for Environmental Law and Policy, she was appointed as a tribunal judge for an Ontario appellate court deciding on land use disputes. An avid sailor, Barbara also owns a farm in Ontario where she raises Highland Cattle and Scottish Deerhounds.

Wayne Vos, Kenya



James L. Kiyiapi

Resident Faculty and Program Director

Center for Wildlife Studies, Kuku Bush Camp



Kiyiapi, as he is called by students and staff, is a member of the Maasai community and was born and

raised in the Transmara District of Kenya. He received his undergraduate degree in Forestry with high honors from

Moi University in Nairobi, then enrolled in a Ph.D. program at the University of Toronto, where he earned his doctorate in Forest Ecology and Management. His research has focused on forest degradation monitoring in Kakamega tropical forest, and enhancing the role of non-wood tree products in livelihood strategies of small holders in semi-arid Kenya. As Head of the Forestry Department at Moi University from 1995-96, he led efforts to involve the department in various national and international programs concerning forestry management and wildlife conservation. James Kiyiapi has also served as a consultant for World Bank and EU funded biodiversity projects in the Mt. Kenya area. He is very well respected in the wildlife and resource management communities and was consistently rated as one of the most popular guest lecturers at SFS for several semesters before he joined the permanent staff in the Fall of 1998.

"Every day we were immersed in new and conflicting ideals as one of the guest speakers, professors, or even students threw a new angle in our discussion. My mind was turned inside out with conflicting reasoning from morality to economics. I had never been forced to question my ideals this way. The professors never once let us get away with blanket generalizations, without pushing us to make those ideals applicable to the real world."

Amielle DeWan, Huntington, NY -
Binghamton University

Mark Tupper

Resident Faculty

Center for Marine Resource Studies

Mark received his undergraduate degree in Marine Biology from the University of New Brunswick. After earning a Master's Degree in Biological Oceanography from McGill University, Mark worked for the Caribbean Marine Research Center in the Exuma Cays,

Bahamas.

He then returned to Canada to study the effects of habitat quality on recruitment of nearshore



fishes of Nova Scotia, and to work on his Ph.D. in Marine Biology at Dalhousie University. Mark is the owner/president of Marine Ecological Research Consultants, a small private research and consulting firm. His consulting work has included conducting fisheries stock assessments in New England and throughout the southeastern Caribbean, environmental impact assessments in Nova Scotia and Barbados, and the development of a recreational fisheries management plan for marine and freshwater fishes of Nova Scotia. Most recently, Mark was at the Rutgers University Marine Field Station, studying the utilization of restored coastal wetlands by commercial fishes. Mark, who joined SFS in January 1999, is the proud holder of Maine vehicle plates "DiveBum".

Nolan Quiros

Center Director

Center for Sustainable Development Studies

Nolan was born and raised in Costa Rica, and earned his J.D. in corporate law from the University of Costa Rica.



Nolan began his professional career as a lawyer with a great interest in international trade issues. In 1990, after being selected as a Jefferson Scholar by the US-AID, he went to Washington D.C. to pursue a Master's Degree in International Environmental Law at American University. At the same time, he 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. Due to his interest in the influence of trade patterns and economic development, the government of Costa Rica asked for his participation in the Costa Rica-Mexico Free trade agreement negotiation team. He later 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. Nolan joined SFS in July 1999 after working as a lecturer and research associate while maintaining involvement with international environmental research. Nolan and his wife Tina have been warmly welcomed in the La Presa community where the Center is based.

SFS Semester Programs

Curriculum

Fall and spring semester programs run for 14 weeks and enroll up to 32 students. To facilitate credit transfer, we have separated the lectures and field work in the integrated semester curriculum into four separate university courses, each carrying 4 semester credits. Three of these courses (*usually incorporating an ecological, resource management, and socio-economic or applied anthropology perspective*) focus on theory using local examples. Each course involves the traditional elements of an undergraduate course including more than 50 hours of lecture plus readings, written assignments, exams, field trips, oral and written evaluations. The fourth course, Directed Research, involves over 150 hours of course and field work including instruction in research design and completion of an individual field project addressing a component of the semester's research objective.

(Please see page 36 for individual course descriptions).

Schedule

Semester programs run for 95 days including a five day midterm break (*the only time you are free to travel on your own*). We compress a 16 week semester into 14 weeks (*by working on weekends among other methods*), so be prepared for an intensive learning process.

The program begins with an orientation to the site and the local environmental issues. An average of three to four weeks is allotted to each of the case studies. Several days at the end of these periods are set aside for synthesis and evaluation. The program ends with a 'Re-Entry' Module offering an opportunity to reflect on the experiences of the semester, clarify values and consider career possibilities.

Our schedule varies. The first half of the semester includes approximately fifteen, one to one and one half hour long lectures a week plus 3-5 other meetings (*organizational, research/paper presentations, guest lectures*). Afternoons are generally filled with field trips or laboratories. Academic activities are usually held six days a week. On average, we spend a total of 3-4 weeks off-campus on field trips, field exercises, and community projects. (*Students at the South Caicos Center spend significantly less time off-campus*).

Later in the semester, there are fewer lectures and organized classes and more time is allocated for Directed Research projects. Additional meetings offer training sessions in the skills (*statistics, paper writing formats, computer spreadsheets, and laboratory analysis*) needed to complete your research.

In addition to daily chores like kitchen duty, several hours are scheduled each week for a thorough site clean-up.

Prerequisites

Semester participants must be at least 18 years old, must have successfully completed at least one college level ecology or biology course, and should have completed at least one semester at a college or university. Other prerequisites may apply; please be sure to check individual program descriptions.

NOT JUST YOUR AVERAGE DAY!

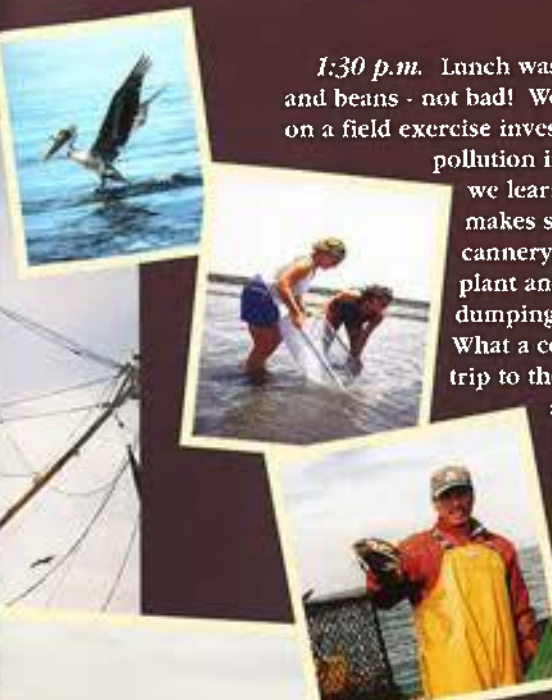
Many considerations drive the daily schedule and every day is a little different from those before or after. There are some consistencies too - every day brings some new discovery, a new awareness or understanding and a sense that time is passing too quickly. The following journal entry offers a glimpse into a day at the Center for Coastal Studies in Babia Magdalena, Mexico

5:30 a.m. Got up early to go fishing with a shrimp fisherman using a traditional hand-thrown net. We only spent an hour and I'm exhausted - I can't imagine hauling that net all day long! Saw lots of dolphins and got great data for our project on the ecological impacts of different types of traditional fishing gear.

8:00 a.m. Got back just in time for breakfast before Salvador's lecture on the economic importance of fishing to the community - fishing or working in the local cannery are about the only job options here so the town really depends on them.

12:00 p.m. Susan gave a great ecology lecture about toxicology and how water pollution from places like the cannery can mess up the marine community. The problems here are more complex than I thought at first... I hope our research can help the town.





1:30 p.m. Lunch was quesadillas, rice and beans - not bad! We spent the afternoon on a field exercise investigating sources of pollution into the bay. The stuff we learned this morning really makes sense now! Besides the cannery, we saw the power plant and evidence of people dumping garbage into the bay. What a contrast to yesterday's trip to the mangrove forest and giant sand dunes. I'd hate to think that pollution could ruin that beautiful place.



6:00 p.m. Just finished (*lost*) a volleyball game against the local team. Off for a quick shower, then dinner; I hear we picked up some blue crabs from a local fisherman.



7:15 p.m. Our research group met to write up the results of yesterday's social survey field exercise. It was fun to sit with local people and learn about their lives - everyone is so friendly! My Spanish is getting better; thanks to the language tutorials we have, I can communicate pretty well. We finished just in time to watch yet another gorgeous sunset... This place is so amazing!



8:30 p.m. Planned our next visit to the elementary school - we're going to use a scavenger hunt to teach the children about their environment.

9:30 p.m. Some students went into town but I decided to hang out here. The moon

is lighting up the Bay and there's a breeze blowing through our palm trees. I'm going to crash hard tonight! Tomorrow is another early one as we're loading up the boats (*called pangas here*) and heading out to Isla de Magdalena where we'll camp and talk to villagers whose families have fished here for centuries.

SFS Summer Courses

Curriculum

Summer courses focus on a single case study question. Each course carries four semester credits in environmental studies and involves elements of an undergraduate course including more than 40 hours of lecture, readings, written assignments, exams, field trips, oral and written evaluations. In addition, you will have the opportunity to actively engage in a faculty-designed research project. These projects directly address and help solve specific environmental problems in the local communities where our centers are based. Projects usually last for more than half the program, culminating in presentations to the local community and interested scientists and representatives from SFS partners and clients.

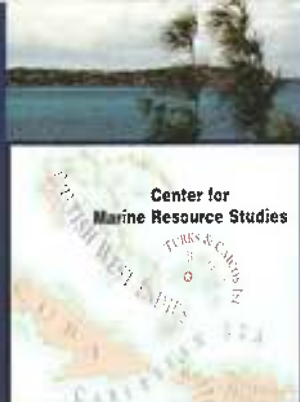
Schedule

SFS summer programs run for 30 days, enroll 32 students and are taught by three faculty. You will be involved in activities seven days a week with only one or two unscheduled days during the program. Be prepared for an intensive learning process. Daily schedules vary from course to course, depending on research agendas, weather, field trips and logistics. Typically, we awaken early and either attend a morning lecture or head out to the field. We devote much of the day to field work, returning to the Center in the late afternoon to process our data or, if we haven't already done so, to participate in our daily lecture. After dinner we may have a guest lecture, group discussion or study time.

Later in the course, we spend less time in lectures and more time working on directed field research projects. Additional meetings may be scheduled to offer training in skills (*statistics, paper writing formats, computer spreadsheets, and laboratory analysis*) needed to complete your research. Everyone should expect to be involved in kitchen/cooking duty and site clean-up.

Prerequisites

Summer courses are taught at the college introductory level. Our low student to faculty ratio and interactive teaching approach allow us to adjust the content and pace of the course to suit the needs of the team. While most summer participants have completed at least one college biology or ecology course, talented and motivated students with no ecology background have had comparable academic success. To apply to a summer program, you must be at least 16 years old by the time the program begins and must have successfully completed at least the junior year of high school. Other prerequisites may apply; please check specific program descriptions.



Center Facilities:

The Center is based in a former hotel on South Caicos Island just steps from our ocean laboratory. The main facility has a large, screened dining area, kitchen, classroom,



library/computer area and a covered veranda overlooking the sea. Students live 3 or 4 to a room in two newly renovated residence wings. We are fully equipped for marine operations with access to two docks, four motorized boats, a commercial SCUBA compressor and plenty of tanks.

Note: 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.

The Center for Marine Resource Studies

- ◆ Dive and snorkel in one of the most spectacular marine habitats in the Caribbean.
- ◆ Research innovative approaches to fisheries enhancement and marine park development.
- ◆ Get to know the friendly local residents known as "Belongers".

The British-governed Turks and Caicos Islands lie at the southern end of the Bahamas chain, 100 miles north of the Dominican Republic. The turquoise waters surrounding the Islands are considered to be among the premiere scuba and snorkeling locations in the Caribbean. Over 40 species of corals and 200 species of fish including spotted eagle rays, sharks, groupers, and snappers are easily spotted in the clear, warm waters just steps from the Center. Nearby seagrass beds, mangrove-studded wetlands, sandy shoals, and coral reefs lend a patchwork appearance to the miles of shallow blue waters that surround the Islands.

The Turks and Caicos Islands (TCI) are a major international exporter of conch and spiny lobster. South Caicos has been the country's most important port for the fishing industry that, in turn, is the economic mainstay of the area. The potential depletion of this resource and its impact on employment and social structure has become a major concern and developing sustainable fisheries is an immediate priority for this fishing community. The Department of Environmental and Coastal Resources must determine how to develop and manage the fisheries, park and reserves for the benefit of residents and visitors without degrading valuable marine resources.

Many Caribbean communities have encouraged development as a means to diversify and strengthen their economies. This has often led to rapid and sometimes detrimental social, economic and ecological change. Tourism and development could become major issues for South Caicos, as they already are on neighboring islands. The spectacular marine environment is drawing developers of second homes and resorts whose actions may help degrade the very attributes which drew them here initially. Rapid development may offer residents short term financial gains while threatening the island's resource base. If the TCI are to escape the detrimental environmental effects of development, it is imperative that community development strategies that are environmentally sound and sustainable as well as socially responsible and beneficial to local residents be identified and developed without delay.



WEST INDIES

Turks & Caicos Islands



"None of us could believe we were actually going to school in such a beautiful place. From any place on campus we could see the beautiful clear Caribbean waters. I had never taken classes that I could relate to my surroundings so well. The faculty would tell us something about the island in lecture and that night a fisherman would tell us exactly the same thing. In such a small and friendly community we could see the direct results of our work and feel like we were actually making a difference."

Sarah McCarthy, Santa Cruz, CA - Santa Clara University

SFS Accomplishments in the Turks and Caicos

Students have contributed to a number of timely, relevant research issues:

- ♦ projects assessing stock levels of lobster, conch and marine finfish have provided important information for the Fisheries Department;
- ♦ a current project testing the effectiveness of artificial lobster shelters in critical nursery and feeding grounds is showing early potential to significantly increase lobster yields;
- ♦ students have helped to survey, map and recommend boundaries for the Admiral Cockburn Marine Reserve while helping to create "trails" through the marine park;
- ♦ the Center has hosted or supported a number of public forums and activities, attended by the governor and other officials, to enable community members to come together to discuss communal problems;
- ♦ students offer environmental education programs and tutoring in the local schools and host an annual SEA DAY at the Center for local school children;
- ♦ students and staff have assisted government evaluators in reviews of Environmental Impact Assessment reports on local resort developments.



There are many opportunities to get to know local residents from interviews with local fishermen, to weekly soccer games, to community functions and our activities in the local schools. SFS students host a SEA DAY at the Center to help elementary school students learn more about their ocean environment.

Semester & Summer
Course Details
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Next Page

SEMESTER PROGRAM

MARINE RESOURCE MANAGEMENT

Classes and research focus on the development and management of marine resources and the attractions offered by the spectacular natural marine environment which could potentially draw paying visitors.

Recent case study questions include:

- ♦ How can the marine ecosystem be managed to bring about sustainable & profitable returns to the TCI?
- ♦ Which socioeconomic and environmental management processes are best to ensure marine resource sustainability?
- ♦ Can the marine environment sustain the South Caicos economy?"

In addition to lectures by Center faculty, local experts including government officials, resource managers, researchers, fishermen, educators, community leaders and business owners/developers meet with students during the course of the semester.

Field Work and Field Trips:

Days are spent in a combination of lectures, field exercises and research. Field work sites include:

- ♦ the colorful and fish filled reefs and shallow banks, seagrass beds, mangroves and beaches surrounding the island;
- ♦ the docks, schools and community of South Caicos.

Field trips may include:

- ♦ the historical boiling hole and salinas salt ponds;
- ♦ the Bell Sound Bonefish Nursery and Marine Reserve;
- ♦ the Admiral's Aquarium Reef Snorkeling Trail;
- ♦ the High Point Resort development construction areas;
- ♦ government offices on other islands.

Recent student directed research projects have included:

- ♦ Monitoring the supply of the Larval Spiny Lobster & Reef fishes to the Caicos Bank;
- ♦ Finfish Landings and Visual Surveys in South Caicos: Biological Characteristics and Management Implications;
- ♦ Use of mini-casitas (artificial shelters) for recruitment of Caribbean spiny lobster (*Panulirus argus*) in areas surrounding South Caicos;
- ♦ Effects of a Marine Protected Area on the stock of adult and juvenile Queen Conchs (*Strombus gigas*) in the Turks and Caicos Islands;
- ♦ Developing Tools for the Economic Valuation of Marine Protected Areas.



Students assessing the status of canals that carry water to the historic salt salinas, a possible tourist destination if ecotourism takes hold here. "I actually got to use the methods I was taught, to see the results for myself, and incorporate how the results affected what I was doing. I cherish this experience for opening my creative mind and encouraging me to problem-solve in real-world situations."

Jennifer Ninneman, Milwaukee, WI -
Regis University



"As good as the lecture portion of the class was, the field exercises were even more educational. We spent afternoons in the ocean learning numerous data collection techniques from using quadrats to map habitats, to how to measure coral growth, to how to identify many of the species of fish, coral and plant life that surrounded us."

Sarah Glasser, Manhattan, KS -
Kansas State University

Semester Program Dates:
September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:
South Caicos Island, TCI, BWI

Students will be registered in four academic courses:
B/E/E (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 36 for course descriptions.

Involvement in the local community

The Center is literally steps away from the town of Cockburn Harbor and students quickly become involved with the community. Much of the community involvement centers around the schools where SFS students tutor in reading.



work with the high school Science and Math Club and judge the debate competition. In addition, students give swimming lessons and host a SEA DAY to introduce elementary school students to the marine environment. Weekly soccer and basketball matches attract enthusiastic crowds as SFS teams challenge local teams (usually unsuccessfully) for the coveted tournament trophy.



SUMMER COURSE

MARINE PARKS MANAGEMENT

Project: *Does the Admiral Cockburn Marine Park have an impact on the management of fisheries resources on South Caicos?*



"Directed research was my favorite part of the program because it really allowed the students to become leaders. We were able to formulate a research project from the beginning design to preparing a final draft and presenting it. I had the honor of presenting my research groups' conclusions to the Governor of the Turks and Caicos Islands and other officials. This gave me a feeling that all my hard work was for something."

Brendan J. Reed,
Edgemont, PA -
University of Richmond

Field Work Focus

- ♦ Comparative stock assessments of conch, lobster and marine finfish populations;
- ♦ Assessing environmental change in coral reef environments;
- ♦ Developing tools for economic and social assessment of the impacts of dive tourism;
- ♦ Marine Protected Area management and planning strategies.

Summer Program Dates:

Session I: June 13 – July 12

Session II: July 19 – August 17

Departure Point:

South Caicos Island, TCI, BWI

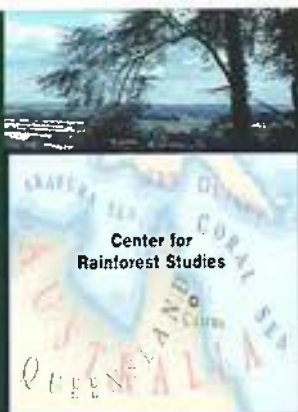
Course Number BI/EE (NS) 373

The reefs surrounding the Turks and Caicos Islands provide excellent habitat for fish and lobster while conch are found in the shallow banks. The reefs also attract tourists, the greatest source of potential new revenue for the area. These reefs are under assault from many sources - land and sea based pollution, diver and boat damage, dredging, dumping and construction. In 1992, a park system was approved to preserve critical natural areas, manage the harvest of renewable resources, and promote income-generating ecotourism.

We will focus on understanding how the bank ecosystem works, its resource development potential, the threats facing these resources, and the role of marine parks in protecting and enhancing conch and lobster stocks. Our results may lead to policy recommendations, marine parks management plans, community projects, and/or innovation and appropriate technology transfer.

Faculty lectures on marine ecology, fish stock assessment, coastal zone management and ecotourism development provide the framework for our fieldwork in the waters and community of South Caicos. Guest lecturers will discuss specific management approaches and economic alternatives while interviews with local residents and fisherman will provide further social and economic information for our investigations. We will catalog resources in the vicinity of South Caicos and further afield when possible. In the course of our land and marine-based fieldwork, we will become familiar with the use of transects, techniques for population sampling and statistical analysis.

Note: 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.



The Center for Rainforest Studies

Center Facilities

Called "Warrawee," aboriginal for "You are welcome here," the Center lies at 700 meters elevation in the northern foothills of the Atherton Tableland. The rolling, hilly site is surrounded

- ◆ Live in a tropical rainforest, surrounded by an amazing variety of exotic birds, plants, and unique wildlife.
- ◆ Work with local residents to sustainably manage forest resources and restore degraded rainforest.
- ◆ Explore some of the most exciting natural attractions of Australia.



by protected World Heritage forests. A third of the property's 153 acres is mature rainforest, and another third is forest regrowth. Student cabins are nestled within the rainforest, and sightings of tropical birds, bandicoots, pandemions, and other species of endemic rainforest wildlife are common. Students share eight person cabins powered by solar and standard electricity. The main building has lecture, computer, and library rooms, and a kitchen. Faculty live in cabins on site.

Australia's remaining tropical rainforests lie along the northeast coast in the state of Queensland. They are spectacular in appearance, and home to primitive plant species, bird species, and marsupials found nowhere else in the world. Giant strangler figs standing 100 feet tall, orange flowered flame trees, crimson and green king parrots, sulfur crested cockatoos, rainbow lorikeets, bandicoots, and tree kangaroos are just a few of the species which fill these forests with color and sound.

Although much of Queensland was once covered in rainforest, what remains is a narrow belt along the coast. Agriculture, ranching, mining and logging have destroyed and disrupted this rainforest habitat. Australia moved to confront these threats to its rainforests faster than most tropical countries, and most of its remaining rainforests were protected under World Heritage designation in 1988.

This decision was quite controversial. Australia's struggle to balance ecology and economics may serve as a model for the rest of the world, but the country still contends with the conflict between resource use and preservation. Many Australians, dependent on the resources the land provides them, continue to exploit rainforest resources and open more land for agriculture and grazing. If restoration and rehabilitation efforts of the rainforests of Queensland are to succeed, they must be seen to provide economic benefits for the inhabitants of this area.



R A L I A Queensland



"The rainforests were lush and green, filled with lianas, epiphytes and trees teeming with wildlife. I felt like I had stepped into a picture in one of my textbooks. We were right in the middle of our own experimental laboratory and the view was spectacular."

Erin Grimm, Fredericktown, OH - Ohio State University

SFS Accomplishments in Australia

Students at this Center have had the opportunity to contribute to several innovative projects:

- ◆ Developing a management plan for the Tolga Scrub, a rare and endangered fragment of rainforest facing ongoing degradation. This plan included weed control, replanting canopy gaps, and creating an education program for use in local schools;
- ◆ Ongoing monitoring of the floral and faunal succession of the Toohey's Creek Wildlife Corridor, which represents one of the first scientific attempts in Australia to link forest fragments in order to facilitate the movement of wildlife;
- ◆ Planting over 10,000 trees grown from seed in the Center's shade house to restore degraded forests, improve water quality through plantings around watersheds, and increase economic output through plantings on pasture lands.



Center Director Tony Cummings explains a concept in the rainforest.

"I know more about the wet tropics region of Australia than I do about the deciduous forests near my home. I'm not necessarily proud of that but it says a lot about how much I learned during the program. I learned the trees of the region and their function, methods of reforestation, soil types, the economics of the rainforest, and much more."

Joshua Kramer, Shrewsbury, NJ - High Technical High School

Semester & Summer
Course Details
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SEMESTER PROGRAM

TROPICAL RAINFOREST MANAGEMENT

Classes and research focus on assisting local resource planners and managers in addressing the complex issues involved in forest regeneration.

Recent case study questions include:

- ♦ How can the economical and ecological benefits of reforestation be quantified in order to convince farmers to plant trees?
- ♦ What is the status of tree kangaroos on the Atherton Tableland, and how can rainforest restoration assist in their conservation?
- ♦ How can continued agricultural development and human settlement be made more compatible with preservation and maintenance of biodiversity in Australian tropical rainforest regions?
- ♦ Will planted rainforest corridors reduce the negative effects of habitat fragmentation and improve the long-term preservation of plants and animals?

In addition to lectures by Center faculty, local experts including resource and park managers, officials from government management agencies, researchers, farmers, aboriginal and community group leaders meet with students during the course of the semester.

Field Work and Field Trips:

Days are spent in a combination of lectures, field exercises and research. Field work sites may include:

- ♦ Rainforest and modified forest habitats;
- ♦ Banana, sugar cane, and dairy farms.

Field trips may include:

- ♦ camping in the Outback and exploring the caves, rock formations, and eucalypt forests of the region;
- ♦ the Mission Beach and Licuala Forests Cassowary Habitats;
- ♦ the Daintree area to study ecotourism and aboriginal land management;
- ♦ the Great Barrier Reef;
- ♦ the ancient Stockwellia rainforest near Mt. Bartle Frere.

Recent student directed research projects have included:

- ♦ The use of Toohey's Creek corridor by avian communities;
- ♦ The development of enrichment plantings for a disturbed remnant forest at Tolga Scrub;
- ♦ Socio-economic and ecological cost benefit analysis of riparian reforestation along the Upper Johnstone River;
- ♦ An exploration of species ethnobotanically significant to aboriginal groups.



"Australia is an amazing place and, environmentally, Queensland offers many different ecosystems to explore. I can't even begin to count all the different forests, swamps, rivers, geological formations and coastal areas we visited. In each we had the chance to observe different plant and animal species and to understand how they worked together."

E. Rae LeGrone, Charlotte, NC
University of North Carolina



"Students and staff have planted over 10,000 trees, most grown from seed in the Center's shade house. 'We didn't just go out and plant trees, we had to analyze soil, carefully select the species to plant, and spend hours clearing the weeds from our plot. But when it finally came time to plant, I felt so proud of what we'd done, I wanted to do more!'"

Kathleen Kilkus, Winona, MN - Knox College

Semester Program Dates:

September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:

Cairns, Queensland, Australia

Students are registered in four academic courses:

BVEE (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 36 for
course descriptions.

Involvement in the local community

The issues of conservation, resource use, and rainforest restoration are extremely important to this community. As a result, we spend significant time interacting with farmers, resource managers, aboriginal clan members, and members



of community groups. In addition to working with local clients, we also are involved in many volunteer and social activities. These include building trails and planting seedlings; giving presentations at local schools; working with local conservation groups; organizing community barbecues at the Center, and participating in local sports competitions, bush dances, and community festivals.

SUMMER COURSE

TROPICAL REFORESTATION

**Project: Reforestation of the Atherton Tableland —
Strategies, plans, and plantings.**



"Learning from indigenous rainforest peoples was the most exciting thing I've ever done; I can't wait to rediscover this feeling during my graduate studies, indeed, to rediscover this feeling again and again throughout my life! I consider myself very lucky to have had such field research experience during my undergraduate career. The directed research gave me excellent practice in writing research proposals, alerted me to some of the nuances and difficulties of performing field research, and prepared me to approach future endeavors with confidence."

Dorian Fougères,
Pittsburgh, PA •
Cornell University.

Field Work Focus

- ♦ Determining what birds, mammals, and reptiles use replanted areas, and how they affect planted rainforest succession.
- ♦ Investigating the potential for creating wildlife corridors between fragmented rainforest parks.
- ♦ Investigating the success of different tree species and planting techniques in restored areas.
- ♦ Assessing interest of local land owners in developing timber and wildlife values on their own lands.

Program Dates:

June 13 - July 12
July 19 - August 17

Departure Point:

Cairns, North Queensland, Australia

Course Numbers: EE (NS) 355

Tropical Reforestation

The designation of rainforests in the Atherton Tableland area as protected World Heritage sites did not end pressures on the forests. The local community still 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 premise of reforestation, and the benefits it promises for endangered wildlife species such as the cassowary and tree-kangaroo, seems self-evident. The realities of rainforest restoration, however, are much more complex. Rainforest ecosystems are incredibly diverse, and characterized by a slow rate of regeneration. It is not currently 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, tropical resource management, and population demographics provide a base for our fieldwork. Students will monitor several past reforestation efforts and assess specific reforestation and management strategies. This data will be used to develop a reforestation plan for a new plot in the Atherton Tableland, where students will be involved in physically planting rainforest seedlings.



BAJAN

The Center for Coastal Studies

Center Facilities

The Center lies on the outskirts of Puerto San Carlos, and is just steps from the shores of the Bay. Sandy beaches lined with palms and mangroves fringe our two acre property. Spectacular



sunsets drape the mountains and dunes of the off-shore islands in orange and purple shadows. Students share four person, solar-powered cabins. Additional facilities include a computer room, library, classroom, laboratory, kitchen, dining and study areas and bath/shower house. Faculty live in small houses on site. We are a short walk from town where dirt streets are lined with colorful plywood and cement houses surrounded by gardens filled with old boats, fishing nets and ornamental plants.

- ◆ Live on the shores of Bahia Magdalena, surrounded by spectacular wildlife and natural beauty.
- ◆ Enjoy a warm welcome into the friendly community of Puerto San Carlos.
- ◆ Work with local residents to identify sustainable options to manage their once abundant and still spectacular natural resources.

Located 700 miles south of the US border, Bahia Magdalena runs for 200 kilometers along the west coast of the Baja California peninsula. This sheltered Bay's blue waters are incredibly rich, and host scores of marine mammals including sea lions, dolphins, and whales. An important habitat on the Pacific highway, the Bay is home to over 100 species of migratory and resident birds - pelicans, cormorants, herons, ibis, and frigate birds, to name a few. The surrounding landscape is no less spectacular. Mangrove filled lagoons give way to white sand beaches and colorful cacti strewn desert.

For centuries the waters of the bay have also supported some of the world's most productive fisheries. Economically important populations of sardines, scallops, shrimp, abalone, grouper, and halibut support an internationally based fishery. Most of the residents of the coastal town of Puerto San Carlos are economically dependent on the bay's marine resources.

But today this beautiful and important bay is considered by many conservation organizations to be one of the most critically threatened ecosystems in Mexico. Fish, blue crabs, and shrimp stocks are dangerously near collapse, and local fishers have responded by illegally harvesting sea turtles and other protected species. Large-scale fishery operations contribute to water contamination, as processing wastes are dumped directly back into the bay. Developers have been buying coastal property, drawn by the region's physical beauty and easy accessibility. As residents look for ways to diversify their economy, resort development and large aquaculture facilities may offer alternative jobs and short term economic gain. With associated harbor dredging, highway construction, power plants, and population growth however, critical habitats and water quality are increasingly threatened. If this important coastal ecosystem is to be conserved, it is critical that methods of development be identified which are ecologically and socially sustainable.



MEXICO

Bahia Magdalena



"I found myself entering another culture, another world. The experience has filled me with a deep respect for others' values, lifestyles, hardships. It is funny the differences a border can generate. A single imaginary line has imposed staggering contrasts between the United States and Mexico - differences that mean so much more after seeing them firsthand. See for yourself. Losing an opportunity to live the SFS experience is almost unforgivable."

Helene Poulshock, Cherry Hill, NJ -
Barnard College



SFS Accomplishments in Baja, Mexico

The Center opened in early 1997, funded in part by one of the first ever debt for environmental education swaps. As the only permanent research base on the Bay, the Center has drawn many researchers from Mexico and abroad. Students have contributed to a number of important research issues:

- a study of the gray whale population led to an increase in whale-watching permits for local boat operators;
- a student initiated, community-based conservation plan has laid the groundwork to create a management plan for regional sustainable development;
- joint exploration with the Government and local fishers investigating alternative shrimp net designs to reduce by-catch and destruction of the fragile bay bottom;
- a socio-economic analysis of the blue crab fishery has provided valuable data to the Puerto San Carlos Office of Fisheries to assist in the development of management strategies for this critical resource;
- a water quality analysis project, designed to discover the sources and impacts of wetland contamination, has resulted in the development of a monitoring program and alternative disposal recommendations.



Learning new observation and data collection skills. "Many study abroad programs are located at foreign universities where students take classes just as they would at their home school. I was looking for more, a program where students worked in biologically significant ecosystems and developed skills that can't be taught in a classroom. I found this at SFS."

David Moeller, Mars, PA -
Washington University

Semester & Summer
Course Details
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SEMESTER PROGRAM

CONSERVING A CRITICAL COASTAL ECOSYSTEM

Our focus during the semester is on collecting biological and socio-economic data necessary to develop a sustainable development management plan for the region and help local residents sustainably manage their resources.

Recent case study questions include:

- ♦ What are the impacts of contamination on the biological and economic productivity of Bahia Magdalena's intertidal zone?
- ♦ How can the unsustainable exploitation of Bahia Magdalena's small-scale fisheries be prevented and what are the economic alternatives to fishing?
- ♦ What are the useful strategies for resource analysis in the Bahia Magdalena area, and how do we incorporate them into the community?

In addition to lectures by Center faculty, local experts including resource managers, university faculty, researchers, representatives of national or international conservation initiatives, and local employers, fisherman and community leaders meet with students during the semester. Spanish lessons are offered throughout the semester.

Field Work and Field Trips:

Days are spent in a combination of lectures, field exercises and research. Field work sites may include:

- ♦ the beaches, mangroves, waters, and communities of Bahia Magdalena;

Field trips may include:

- ♦ the small island fishing village of Puerto Bahia Magdalena, home of the most traditional fishing families of the peninsula;
- ♦ camping among the starkly beautiful dunes and sandy white beaches of Magdalena Island;
- ♦ the Estero San Buto to explore small aquaculture initiatives;
- ♦ the intertidal zones of Punta Santa Maria.

Recent student directed research projects have included:

- ♦ Fisheries management techniques used in the Bahia Magdalena-Almejas lagoon system for the blue crab;
- ♦ A tri-seasonal abundance of copepods during the 1997-98 El Nino event in Bahia Magdalena;
- ♦ Evaluating by-catch of trawl-based shrimp nets;
- ♦ A working matrix for the assessment of tourism impact in Puerto San Carlos;
- ♦ Bay Business: A look at business practices in cooperatives of Bahia Magdalena;
- ♦ Anthropogenic impacts on water quality in Bahia Magdalena.

Note: Due to our extensive interaction with the people of Puerto San Carlos who recognize and appreciate any attempt to converse in Spanish, applicants are encouraged to complete at least one semester of Spanish prior to the start of this program.



"There are awesome moments when you may share a small square of ocean with a gray whale and her calf; or look up from dinner to see the colorful sunset over the islands of the bay. You realize that you are no longer a student fulfilling graduation requirements, you are part of a family of people who care intimately for the bay they have come to know and love. And most importantly, you learn that you can make a difference in its future."

Molly McAllister, Portland, OR -
Lewis and Clark College



People here relate to their landscape, life, families and work in a way that has been all but lost in the U.S. - this is the real charm of Puerto San Carlos. Our location near town ensures that we have the opportunity to become integrated into the community. "The interaction with the community was the most influential part of the program for me. Whether interviewing fishermen for our research project, teaching the Kindergarten about the environment, or simply playing a pick up game of basketball in the plaza, I not only learned more about the culture, but came to understand the reasons for some of the environmental problems."

Lauren Keyser, Miami University

Semester Program Dates:
September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:
La Paz, Baja California Sur, Mexico

Students are registered
in four academic courses:

BVEE (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 36 for
course descriptions.

Involvement in the local community

Because of this program's community based approach to conservation and development, we spend significant time working within the local community of Puerto San Carlos. In addition to working with local



clients and interviewing fishers, business owners, and community leaders, we also are involved in a number of volunteer and social activities. These include developing environmental education programs in the local schools, participating in community meetings, community service projects, beach clean-ups, and playing in local volleyball, basketball, and soccer tournaments.

SUMMER COURSE

PRESERVING COASTAL DIVERSITY

**Project: Conservation of Marine Turtles in Magdalena Bay —
An integrated community approach.**



Checking out the catch in a crab trap. "SFS offers excellent academics as well as beautiful scenery! A combination of lectures and field exercises provides much more than the traditional college experience. I especially enjoyed the directed research; it offered excellent insight into the intricate workings - political, cultural, ecological and economic - of subsistence fishery, both its merits and its downfalls."

Cat Dudnick,
Linwood, NJ -
Franklin & Marshall
College

Field Work Focus

- ❖ Collecting data on coastal habitats and sea turtle populations.
- ❖ Assessing cultural values and traditions as factors for conservation strategies.
- ❖ Producing recommendations for designating special management zones or protected areas.

Program Dates:

Session I: June 13 - July 12
Session II: July 19 - August 17

Departure Point:

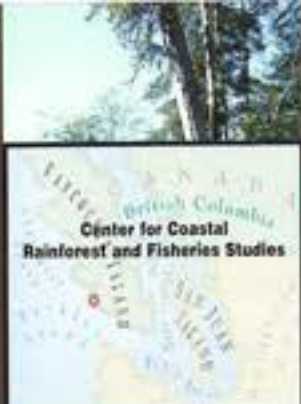
La Paz, Baja California Sur, Mexico
Course Number: EE (NS) 356

The coast of Baja California has traditionally played an important role as developmental and feeding areas for several sea turtle populations. Little information is available for sea turtles during their residence here or during their migrations from these areas to their nesting beaches. It is known, however, that there is a high degree of both natural and human-induced mortality at each of the turtle's life stages. Sea turtles have traditionally been exploited for their meat and are frequently harvested unintentionally as bycatch of many other fisheries. The result is that, globally, all sea turtle species and most populations are considered either endangered or threatened despite strict laws and prohibitions against their exploitation. A complex interaction of social factors, mismanagement, and economic hardship has led to the rapid decline of sea turtle populations throughout Mexico.

This issue involves ecological, social and economic issues, and lectures and directed research projects will be highly multi-disciplinary. Students will research the role of sea turtles in the coastal ecosystem, mortality rates using biological data from stranded turtles, and social studies involving surveys of fishers and townspeople. We will then organize this data to design strategies for the protection and management of sea turtles in the Bahia Magdalena area.

"I believe SFS is very important for environmental studies majors because they are introduced to four things that they might not get to do on their home campuses. First they get to study abroad, in a new biologic and geographic setting. Second, they get to do hands-on fieldwork. Third, they get to do service. And fourth, they get a practical experience. At the same time, they are meeting students and professors from different colleges, and new people and cultures in a foreign land. Science majors have to study social science, and social science majors have to study biology. The whole package is interdisciplinary, an integration of natural and social science."

Dr. Robert Carson, Professor Geology & Environmental Studies, Whitman College



The Center for Coastal Rainforest & Fisheries Studies — British Columbia

Center Facilities

Our Center is located in the small town of Bamfield, a community of both native and non-native people along Vancouver Islands' rugged west coast. Our base is Aguilar House,



a former resort overlooking Bamfield Inlet and accessible only by boat. Stunning beaches and intertidal zones are steps away. The main house contains the dining/ study/lecture area, kitchen, lounge, library and computer rooms. Students are housed in four, large rooms, each with a bath. Faculty and staff live in nearby buildings.

- ◆ Live surrounded by a coastal temperate rainforest with stunning ocean vistas.
- ◆ Learn forest management practices in one of the most politically charged areas of the world.
- ◆ Work with local conservation and First Nation groups to revive salmon populations through stream restoration.

Although most of the media's attention has focused on tropical rainforests, the fate of temperate rainforests is no less certain. Much of the world's remaining temperate rainforests are found along Vancouver Island's west coast. These forests support some of the oldest and largest trees in the world. Forests of towering cedar, Sitka spruce and Douglas fir shelter wildlife including bald eagles, wolves, and black bears. The coastal marine zone supports abundant fish and seabird populations as well as marine mammals including orcas, porpoises, and sea lions.

It's no accident that most great civilizations and cities emerged in coastal regions. Coastal ecosystems provide an abundance of natural resources which man has long exploited, and the Barkley and Clayoquot Sound regions are no exception. Timber and fisheries provide the economic base for many people of this region. The forests contain extremely valuable trees and the ocean has produced rich resources of fish, most notably salmon and shellfish.

Today, the future of this area is being hotly debated, from logging camps and the homes of native peoples to the seats of government. The provincial economy is heavily dependent on logging and related industries. Certain logging practices have altered the critical flow of water from coastal watershed to the estuaries and ocean, threatening migrating birds, fish and marine mammals. Recent studies have found extensive damage to salmon spawning streams from clearcutting. As fish catches diminish and the future of logging is debated, local communities are struggling with potential changes in their way of life. While immediate job loss is of deep concern, the destruction of the productive capacities of the ecosystems upon which their livelihood depends is an even deeper threat.

Over the past ten years, controversial land-use decisions for this area have further polarized not only the communities of Clayoquot and Barkley Sounds, but people across Canada and around the world. There is a great need here for social, economic and ecological data, problem-solving strategies, and training in ADR (*alternative dispute resolution*) techniques. The lessons learned working in a leading developed country are directly transferable to the U.S. or to other countries facing similar challenges.



Canada Vancouver Island



Surveying a stream as we work with First Nation groups to reestablish economically important salmon runs. "After talking with my professors, I chose to go to the Pacific Northwest. The courses related to the forestry, economic and ecology skills I'll need to get a job in the forestry field in the U.S. The approach to learning used by SFS prepared me with the skills to confidently approach complicated environmental problems and culminated in the best learning experience I've ever had."

Sean Libbey, Westwood, MA - Muhlenberg College

SFS Accomplishments in British Columbia

Staff and students at the Center have worked closely with local residents and have assisted several First Nation communities to address resource management challenges. Results include:

- ◆ assisting the town of Bamfield with a successful proposal to put a provincially owned woodlot under the community's control;
- ◆ the identification of a large number of previously unmapped culturally modified trees with historical significance to First Nation communities that may qualify the areas in which they are found for preservation;
- ◆ the analysis of proposed cut block plans for their impacts on ecological sustainability. Students added information on critical wildlife habitat including black bear dens, nesting areas for the endangered Marbled Murrelet, and salmon streams in areas proposed for clear-cutting. This material was shared with local communities, planning authorities and logging companies and resulted in the removal of some areas from logging consideration;
- ◆ the completion of an interpretive trail and environmental education program for a wood products company and an interpretive trail on Flores Island for the Ahousaht First Nation Band;
- ◆ a report on the economic benefits of recycling which led the town of Bamfield to propose new waste management options.



A single huge cedar can bring up to \$30,000 at the lumberyard. With ongoing controversies around logging and a new moratorium on salmon fishing, the local economy has been severely impacted and the need for new revenue options has never been greater.

Semester & Summer
Course Details
Continue on
Next Page

SEMESTER PROGRAM

COASTAL RAINFORESTS AND MARINE RESOURCES

Our classes and research focus on issues related to community watershed planning and resource management in coastal ecosystems.

Recent case study questions include:

- ♦ What are the impacts of forestry on the Sarita River and once the impacts are determined, how can it be restored?
- ♦ How do we assess and develop a landscape level plan for ecosystem management in Huu-ay-aht territory?
- ♦ What is the bio-physical consumption of resources in coastal temperate rainforest communities?
- ♦ How do we increase awareness of the coastal temperate rainforest?
- ♦ How can the coastal watershed be managed to support a healthy marine ecosystem as well as viable fisheries?

In addition to Center faculty, students have access to 15-20 local experts including municipal foresters, representatives from logging concerns, park managers, First Nation elders and resource managers, researchers from local universities and the Bamfield Marine Station, salmon fisherman, local artisans, and community leaders who lecture and meet with them during the semester.

Field Work and Field Trips:

Days are spent in a combination of lectures, field exercises and research. Our field work sites include:

- ♦ the temperate forests, lakes, beaches and coasts of the watersheds and islands near Bamfield.

Field trips allow us a comparative perspective and may include:

- ♦ Pacific Rim National Park;
- ♦ the spectacular Carmanah Provincial Park (home to some of the largest and oldest trees in the world);
- ♦ small scale woodlots, salmon fisheries and logging operations;
- ♦ First Nation communities;
- ♦ Clayoquot Sound and Hot Cove Springs;
- ♦ the coastal towns of Ucluelet and Tofino.

Recent student directed research projects have included:

- ♦ Sockeye salmon spawning habitat and stream morphology assessment;
- ♦ Assessment of distribution, abundance and role of coarse woody debris on a small scale woodlot;
- ♦ Assessment of aquaculture potential for the Sarita River delta;
- ♦ Mapping interpretive trails in the Bamfield community woodlots;
- ♦ Kix'n: Management options for a proposed Huu-ay-aht National Historic Site.



"I wasn't just attending classes, I was immersed in my studies both mentally and physically. The lectures directly related to the field work. Everything had an application. I wasn't striving to finish a paper, I was striving to stop a proposed cutblock or restore an unhealthy stream. I wanted to understand what I was learning so I could apply it and make a difference."

Melody Kemp, Indianapolis, IN -
Marian College



Students at Cow Bay.

"I am still amazed at how much I learned about forestry, fisheries, marine life, ecotourism, etc. Living in the environment which I was studying made all the difference. The knowledge just sunk in because it was not all from reading textbooks and it was so interesting. We got to do some amazing hands-on learning."

Meghan Cole, Worcester, MA -
University of New Hampshire

Semester Program Dates:

September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:

Vancouver Island, British Columbia

Semester students will be registered in four academic courses:

BI/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 36
for course descriptions

Involvement in the local community

Students have many opportunities to integrate into the local Bamfield community and to experience the rich culture of the many First Nation Bands who have inhabited this region for over 4000 years. In addition to tutoring in the schools, engaging in local sporting events,



participating in beach clean-up and community recycling efforts, students have hosted coffeehouses and picnics at the Center as well as a BC Rivers Festival, community workshops and a forest field trip for local residents. Student research presentations at the end of the semester are open community events. SFS students have had the unique opportunity to be included in a number of events hosted by First Nation groups including the most significant native celebration (Potlatch) of the decade.



SUMMER COURSE

CONSERVING MARINE RESOURCES AND COASTAL RAINFORESTS

Project: *Assisting First Nations and other groups working to ensure the ecological and cultural heritage of Barkley Sound.*



*Taking a core sample:
"The local residents took a real interest in what we were doing. That is what I believe made the program so great. We weren't just studying problems halfway around the world, but were searching for solutions while living among the people who would be most affected by any decision made. They weren't just numbers of people who would lose a job if a mill closed or a fishing boat went out of business. They were real people with families. That kind of grounding is impossible to get in a lecture hall."*

Curtis Weinrich,
Rosebud, MO -
Northland College

Field Work Focus

- ♦ Habitat identification and mapping.
- ♦ Assessing environmentally sensitive areas including restoration and management techniques.
- ♦ Bioregional mapping and cultural resource inventory techniques including ethnobotanical methods and oral history interviewing.
- ♦ Working forest assessment techniques.

Program Dates:

Session I: June 13 - July 12

Session II: July 19 - August 17

Departure Point:

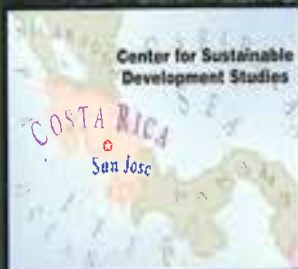
Vancouver Island, British Columbia

Course Number: EE (NS) 353

There is a First Nation concept of *Hishuk ish ts'awalk* - "everything is one". This traditional philosophy holds that there is a great spirituality and sacredness in the earth, and a oneness between humans and their environment. For many First Nation people, this concept forms the framework of their approach to conservation and the environment.

As some of the land of Barkley Sound falls under First Nation jurisdiction, many groups struggle to find ways to use natural resources in a way that maintains ecological and cultural integrity. Other groups have also adopted the theory of an ecosystem-based approach to management. If these theories are to become reality, however, they must be developed into specific, on the ground practices.

Students will be using traditional First Nation territorial lands and other protected areas as their laboratory. These areas are experiencing escalating pressures from recreational use, logging, and development. Students will address the challenge of coordinating activities at a landscape level to insure that protected areas are linked, both aboriginal and non-aboriginal communities participate in decision making, lands are co-managed, biological benchmarks are established and economic opportunities for developing sustainable communities are considered.



**Location/Center
Facilities:
Atenas, Costa Rica**

Our base is a small farm on a hillside overlooking the Rio Grande river in the fertile Central Valley. The property includes a large



house where faculty live and meals are eaten. Students live in a refurbished chalk factory converted to dormitory space; there are five large bedrooms (6-7 students per room), bathrooms, a classroom, a small laboratory, and a library/computer room. We look out over green hillsides dotted with farms growing coffee, mangoes, bananas, citrus and pineapples. The local community of Barrio Los Angeles is a short walk from the center while Costa Rica's varied and spectacular ecosystems are within a day's travel.

COST

The Center for Sustainable Development Studies

- ◆ Explore Costa Rica's many spectacular ecosystems.
- ◆ Work with local residents to identify innovative and sustainable resource development options.
- ◆ Immerse yourself in the welcoming community of Atenas.

Costa Rica's spectacular natural resources have made it a prime destination for ecotourists from all over the world. The cloud forests, rainforests and mountain plains here are thought to shelter more than 6,000 plant species (*including more than 1,000 orchid varieties*). With 500+ species of butterflies, "butterfly ranching" has emerged as a viable economic activity. More than 800 bird species - quetzals, toucans, hummingbirds, scarlet macaws - are found in the wet and dry forests. And the magnificent beaches are among the world's largest-known nesting grounds for sea turtles.

Acknowledged as an international leader in land preservation with 27% of the country designated as protected zones, Costa Rica now faces a struggle common to many developing countries: How to preserve its beautiful (*and increasingly economically valuable*) natural resources while fostering its population's desire for prosperity. Resource managers now recognize that protected areas cannot fulfill their mission to safeguard biodiversity and contribute to sustainable development while operating as isolated units. Issues such as river pollution, soil protection, and the need for biological corridors to allow for animal migration can only be addressed by protecting whole regions. This concept competes head-on with the escalating needs of the Costa Rican people for productive agricultural land and housing. Both traditional and alternative land-use options may lead to natural resource deterioration including poor water quality, soil erosion and pesticide build-up. Although hailed as a possible economic and land use alternative, there is no concrete evidence that ecotourism is a sustainable solution. The development which follows may be as destructive as agriculture has been to date. Identifying economically and ecologically sustainable resource management options is becoming a top priority for this rapidly developing country.



AMERICA

Atenas



Data collected by SFS staff and students on integrated pest management, indicators of ecosystem health and gender roles in agroforestry have been shared locally and also presented at international conferences in the U.S., Mexico, Australia, Denmark and Cuba.



SFS Accomplishments in Costa Rica

SFS staff and students have had the opportunity to address a number of timely issues relevant to communities in Costa Rica. Their recent efforts have resulted in the development of:

- ◆ an operational management plan for two protected areas, Cerro Atenas and Rio Grande, in one of the most important watersheds in Costa Rica;
- ◆ recommendations for controlling the economically devastating white fly using integrated pest management options, at the request of local farmers;
- ◆ book chapters on the energy necessary to produce coffee locally and recommendations for alternative, poly cropping systems with lower environmental impacts as well as on the results of a study of shifting womens' roles in crop protection decision-making;
- ◆ a profile of customer awareness and attitudes towards organic products for use by NGO's and local farmers;
- ◆ guidelines for protecting Costa Rican wildlife in captivity.

"The most valuable lessons were learned outside the classroom, from the community and from the farmers. The lectures solidified facts and helped me make important connections but to see what we learned in context, in the field, made so much sense. I understand now that diplomats at a UN Conference cannot create a treaty that will miraculously solve environmental problems. In each case there needs to be an understanding of the problem in its local context."

Christina Beaumier,
Haydenville, MA -
American University

Semester & Summer
Course Details
Continue on
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SEMESTER PROGRAM

STUDIES IN SUSTAINABLE DEVELOPMENT

Our goal is to contribute to management plans for the sustainable development of the communities in the Atenas region by focusing on agricultural production, reforestation, management of protected areas and the development of alternative economic opportunities including ecotourism.

Recent case study questions include:

- ❖ How can Costa Rica achieve sustainable agriculture as it moves into the twenty-first century?
- ❖ How can community-based incentives more effectively promote conservation and production?
- ❖ How viable is grassroots-based sustainable development in small communities in view of the trends imposed by the globalization of the economies in less developed countries?
- ❖ How viable are ecotourism and other alternative resource utilization options?

In addition to Center faculty, students have access to local experts including resource and park managers, officials from government management agencies, researchers, farmers and cooperative members, representatives of multi-national corporations, community leaders and local grassroots organizers who lecture and work with them during the semester. Spanish instruction is provided during the program.

Field Work and Field Trips

Days are spent in a combination of lectures, field exercises and research. Our field work sites include:

- ❖ local coffee plantations, farms, preserves, forests and the communities of Atenas.

Field Trips may include:

- ❖ the protected zones of the Central Valley to study watershed management;
- ❖ the cloud forests of the central highlands to explore organic blackberry farming and natural forest management;
- ❖ the Atlantic lowland rainforest regions of Talamanca and Sarapiquí to examine examples of grassroots, sustainable resource use including medicinal plant cooperatives, organic agriculture, and sustainable forest management using water buffaloes;
- ❖ the Pacific lowlands to explore the contrast in pineapple production methods between grassroots cooperatives and multinational corporations.

Recent student directed research projects have included:

- ❖ Integrated pest management in annual crops;
- ❖ The role of women in protection of natural resources;
- ❖ A comparison of energy efficiencies in the production and processing of coffee;
- ❖ Bird species diversity in shaded vs. unshaded coffee plantations;
- ❖ Ground cover crops as alternatives to herbicides;
- ❖ Energy flows in natural and managed ecosystems;
- ❖ Economic and natural diversity issues associated with the Pacuare Dam.



"We spend a third of our time on field trips including a visit to an experimental mangrove charcoal business." My directed research project - at first an intimidating proposition since my educational background was in communications and not environmental studies - was the most rewarding effort of my academic career. This wasn't a fabricated assignment - it was real! Our interactions with local families provided a complete cultural experience... no classroom experience can provide that type of learning."

Matthew Provost, Wareham, MA •
Ithaca College.

Prerequisites:

Applicants must have completed a college level course in ecology or environmental studies. Participants are encouraged to also have taken coursework in international development, economics or anthropology. Students must have completed at least one college level course in Spanish prior to participating or otherwise demonstrate a working knowledge of conversational Spanish.

Semester Program Dates:

September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:

San Jose, Costa Rica

Semester students are registered in four academic courses:

EE(NS) 377 Tropical Ecology and Sustainable Development

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

EE(NS) 374 Principles of Resource Management

EE 491 or 492 Directed Research

Please see page 36 for course descriptions.

Involvement in the local community

Because the communities' land-use choices are among our chief concerns, we spend sizable blocks of time on local farms and speaking with agricultural cooperatives. Any sincere attempt to converse in



Spanish is recognized and appreciated. Students quickly become involved in local activities ranging from weekly soccer games, to community festivals, to tutoring in local schools, volunteering in orphanages, repairing roads and establishing local recycling efforts.



SUMMER COURSE

STRATEGIES FOR SUSTAINING TROPICAL ECOSYSTEMS

**Project: *Developing effective Strategies for Sustaining
Critical Tropical Ecosystems***



Field Work Focus

- ♦ Determining the effectiveness of current protected areas.
- ♦ Investigating whether current regulations that protect areas including buffer zones, create true protection or mere "paper parks."
- ♦ Determining whether private initiatives can preserve ecosystems as efficiently as protected areas.
- ♦ Investigating whether privately protected areas are economically viable.

Program Dates:

Session I: June 13 - July 12
Session II: July 19 - August 17

Departure Point:

San Jose, Costa Rica

Course Number: EE (NS) 352

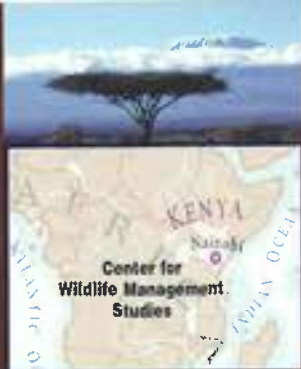
Costa Rica's model system of preserving biodiversity through the establishment of an extensive national park system has led to the development of an important economic industry - ecotourism. Tourism is one of Costa Rica's top sources of income surpassing coffee and banana production. Costa Rica is preserving biodiversity not only for its own sake, but to provide for the current and future economic needs of its people.

Our search to identify successful management strategies will take us to a tropical cloud forest, the Poas Volcano, the highlands and mangroves of Costa Rica and a number of other Protected Zones. Faculty lectures will address the history of Costa Rican national parks, models of natural resource protection, economics and sustainable development, and managing for diversity. Guest speakers will explain federal protection schemes and the operation of private reserves. During our visits we will involve local community members and investigate the sustainable use of natural resources, watersheds, soils, fauna, buffer zones, and sustainable agricultural production as we prepare to recommend the most viable preservation strategies.

"We saw monkeys, quetzels, and scarlet macaws as well as walking palm trees and other incredible examples of botanical life. Having the opportunity to explore off the beaten track definitely added to our experience. In conversations with other travelers we soon became aware of how special our experience was as they talked of disappointing and overcrowded places. We were able to have lecture hikes through a rarely visited cloud forest, live in a cabin in the rainforest and visit remote communities."

Carly Anderson,
South Windsor, CT •
Emory University

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



EAST AFRICA

The Center for Wildlife Management Studies

Center Facilities

Students conduct research from two unique locations; Game Ranching Ltd. (GRL), an 81 square kilometer game ranch on the high plains outside Nairobi, and from the Kuku Maasai group ranch located between Tsavo and Amboseli National



Parks. From GRL, Mount Lukenya dominates the northern horizon while Dinesen's beloved Ngong Hills lie due west. Students sleep in thatched bandas. An open dining/lecture hall, library, separate student center, outhouses and openair showers complete our base camp. The Maasai group ranch lies in the shadow of Mt. Kilimanjaro where students sleep in large tents at our remote and rustic setting. Additional facilities include a dining/kitchen building, classroom, library, outhouses and openair showers. Oryx and vervet monkeys, umbrella shaped acacia trees, wildebeest, impala, a diverse array of tropical birds and the elephants and giraffes we encounter on our travels are daily reminders that we are in Africa.



- ◆ Live in close proximity to the wildlife you are studying on an innovative Maasai Group Ranch and a managed game ranch.
- ◆ Explore human-wildlife conflicts from the perspective of local ranchers, park managers and local communities.
- ◆ Visit areas of Kenya inaccessible to many tourists.

Authors and adventurers from Hemingway to Roosevelt to Dinesen have mesmerized us with descriptions of Kenya's harsh desert, arid plains, gentle savannas and dense rainforests. Acacia trees and croton thickets shelter antelope, zebra, rhino, and elephant, as well as the lions, cheetahs and leopards which prey on them. Today, Kenya's reputation and reality are on a collision course as the sight of giraffes browsing with the highrise buildings of Nairobi as a backdrop are testimony to the escalating human-wildlife conflict facing many East African countries. The habitat required by Kenya's fabled wildlife, the country's most famous and economically valuable resource, is increasingly threatened by modern development pressures and soaring rates of population growth. At the same time, many Kenyans struggle to raise enough food just to survive. Farmers are forced onto land that is marginal or unsuitable for agriculture and traditional pastoralist lifestyles are also being threatened. Previously nomadic peoples, such as the Maasai, and the cattle herds that provide their primary sustenance, have been confined to ever smaller areas leading to overgrazing and rangeland devastation. The wild animals, which have co-existed for centuries with these non-hunting people, are now seen as competitors for scarce water and grazing resources.

The parks and reserves that offer protection to wildlife are being isolated as the traditional dispersal areas surrounding the protected areas are converted to food production using methods detrimental to wildlife habitat. Reduced habitat undermines the longterm viability of Kenya's irreplaceable wild animal populations and the booming tourist industry they support. The search for ecologically appropriate solutions to the conflict between food production and wildlife habitat must proceed without delay.



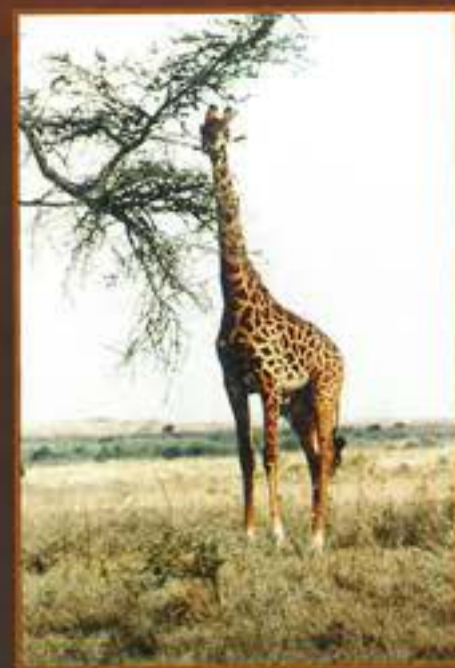
AFRICA

Kenya



We will visit conservation areas with lush vegetation, high biodiversity, and large herds of grazers as well as areas where large populations of feeding elephants have left a stark and lunar-like landscape and dramatically decreased biodiversity. We will also talk with Kenyans living adjacent to these areas who must deal with marauding wildlife which threaten crops and lives. "The most valued skill I acquired was knowing how to look at and think about resource issues more objectively and thus more effectively."

Mark Faherty, Brockton, MA - University of New Hampshire



SFS Accomplishments in Kenya

SFS has been in Kenya for over fifteen years and has contributed to the management plans for the game ranch where the Center has been based, for several Maasai groups ranches and for national protected areas such as Nairobi National Park. Other contributions include:

- ◆ Students worked with local Maasai and the Kenya Wildlife Service 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.
- ◆ Students analyzed 17 years of data on Thomson's gazelle to identify possible reasons for a recent population decline. Data suggest that the decline is due to predation on juveniles.
- ◆ Students conducted an 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.
- ◆ SFS teams helped build a library in the town of Magadi and taught the local schoolchildren about the environment through skits, songs, and readings.

"We had to count herds that refused to stand still and blended into the grass and trees. Another mystery of the difficulties of wildlife management was illuminated - no one knows the exact status and viability of any one species because they are so hard to see (except maybe elephants!)."

Elizabeth Derryberry, Asheville, NC - Princeton University

Semester & Summer
Course Details
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SEMESTER PROGRAM

WILDLIFE ECOLOGY AND MANAGEMENT

All students will live and do research at both field sites, switching locations midway through the program. Our focus at the game ranch is on wildlife management in areas that are not currently protected. This where 70% of all Kenya's wildlife is currently found and where there is the most to lose and therefore the best chance to have a positive impact. At the group ranch, we have the unique opportunity to work with a traditional Maasai community and help them develop management plans to reduce human-wildlife conflicts and to allow the Maasai to benefit from the incredible wildlife with which they live.

Recent case study questions include:

- ◆ How can we reduce the conflict between elephants and the Maasai people living adjacent to Amboseli National Park?
- ◆ How do we manage rangelands resources for optimal and sustainable wildlife populations?
- ◆ How can the wildlife needs of Nairobi National Park be balanced with the increasing development along the Park's boundaries?

In addition to working closely with Center faculty at both sites, students have access to many local experts including wildlife researchers, government officials, park and resource managers, local professors and conservation representatives who will lecture and meet with them during the program.

Field Work and Field Trips

Days are spent in a combination of lectures, field exercises and research. Our field work sites include:

- ◆ the acacia thickets, and extensive rangelands and savanna of the Game Ranching Ltd., and nearby Nairobi National Park;
- ◆ the grasslands of southern Kenya and wildlife migration routes between Amboseli and Tsavo National Parks.

Field trip destinations may include:

- ◆ Nairobi National Park, Amboseli and Tsavo National Parks or the Maasai Mara;
- ◆ manyatta visits in Maasai villages;
- ◆ farms at Magadi and Kimana, the markets at Machakos;
- ◆ a climb to explore the microclimates of Mt. Lukenya.

Recent student directed research projects include:

- ◆ an assessment of vegetation damage by elephants in Kimana Community Wildlife Sanctuary;
- ◆ developing a management plan for the Ngong Hills Forest Reserve;
- ◆ an investigation of possible negative effects of cropping on Thomson's Gazelle populations;
- ◆ development of an ecotourism plan for Isinye Group Ranch;
- ◆ assessment of rangelands to establish sustainable livestock stocking rates.



"We spent a lot of time with the Maasai people, talking to them and visiting their homes. Our objective was to get a good understanding of their position on wildlife management and then help them design a management plan. I would never have understood the problems, such as elephant overpopulation and destruction, if I hadn't visited Kenya and met these people."

Andrea Michlovitch, East Syracuse, NY -
SUNY College of Environmental
Sciences and Forestry



Radio tracking is one of the technologies we use to assess the flight distances, food preferences and ranges of giraffe, antelope, kongoni and impala populations on the game ranch.

Semester Program Dates:

September 12 - December 15, 2000
January 30 - May 4, 2001

Departure Point:

Nairobi, Kenya

Students will be registered in four academic courses:

BI:EE (NS) 371

Techniques of Wildlife Management

BI:EE (NS) 372

Wildlife Ecology

EE (SS) 302

Environmental Policy and Socioeconomic Values

EE 491 or 492

Directed Research

Please see page 36 for course descriptions.

Involvement in the local community

Members of the Center staff come from various regions of Kenya and belong to several Kenyan tribal groups, including Kamba, Maasai and Luo. Our field trips and discussions with local farmers, pastoralists, park wardens and



management officials bring us into contact with other tribal groups and indigenous communities. Our setting at the group ranch and manyatta visits with the Maasai in areas off the regular tourist routes enable us to meet and spend time with the people who are most impacted by wildlife interactions. Our community service work in some of the local schools has been very well received as students teach us songs and stories and we respond in kind.



SUMMER COURSE

COMMUNITY WILDLIFE MANAGEMENT

Project: *How can wildlife using communal lands be managed to minimize conflict with the local community?*

Field Work Focus

- determining whether current landuse strategies are ecologically sustainable;
- evaluating existing wildlife densities and distributions in relation to land-use patterns;
- assessing the nature and extent of human-wildlife conflict;
- exploring viable approaches and options from a community perspective.

Program Dates:

Session I: June 13 - July 12

Session II: July 19 - August 17

Departure Point:

Nairobi, Kenya

Course Number: EE (NS) 350



"Interacting with the local community opened my eyes to many things I'd never thought of before. We spent a day at a school in Kimana. At one point a 16 year old asked me what kind of crops we grew in the U.S. Could you imagine any American teenager asking that question to a person from a different country? I was fortunate to be part of research project that involved interviewing people from all walks of life from a Maasai cattle owner to the very influential Richard Leakey. I only hope I will remember everything I learned, saw and felt in Kenya. That kind of insight is something you don't want to let go."

Kathryn Parmentier,
Green Bay, WI -
University of
Wisconsin/Green Bay

At the invitation of a local group ranch or the Kenya Wildlife Service, we will research potential solutions to the conflict between current wildlife management practices and traditional landuse practices. Reconsidering wildlife as a source of income generation may provide a sustainable land-use option. We will explore possible commercial uses of wildlife from game cropping, to regulated sport hunting, to eco-tourism. We will then weigh the potential benefits of utilizing wildlife with alternative land-use options such as agriculture.

Faculty lectures introduce African climatology and geomorphology, plant and animal identification, socio-economic parameters, animal social organization and behavior, plant/herbivore interactions, and theories of island biogeography and biodiversity. Field work exposes us to ecological assessment techniques, mapping, vegetation analysis, animal population censusing, biometry, behavioral observation and sampling. During field trips to parks, group ranches and critical wildlife areas, we will meet with wildlife managers and have an opportunity to compare behavior and productivity of wildlife in protected areas with that of animals on game ranches or in protected areas. Interviews with community members provide insight into cultural perceptions that may influence our recommendations and their ultimate implementation.

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 will study habitat assessment, plant and animal identification, plant and animal associations and distributions, and other approaches to evaluating the savanna ecosystems. The behavioral, physiological, and social responses of animals to a changing environment will be examined. Selected field and laboratory techniques useful 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 African savanna ecosystem. We will focus on the fundamental processes and inter-relationships between the biotic and abiotic environment. We begin with a discussion of basic ecological principles, setting them against the background of East Africa. The 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 the ranch and 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 described and 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 the structure and function of tropical rainforests including the 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 then 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 the principles learned in this course.

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 techniques, 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.

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)

EE (NS) 377 Tropical Ecology and 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 by people in the region. 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 resource 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 at the interface between land and sea in order to provide an understanding of how human perturbations can impact both marine and terrestrial systems. The watershed concept will be used to explore nutrient flow, energy cycling, erosion, coastal circulation, productivity, and biotic interactions. This course is designed to provide a basic understanding of how natural systems work in order to help guide resource managers toward ecologically sound and sustainable decisions. Field work exposes students to techniques of surveying and 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 which surrounds the natural resources under study and which will determine, in part, which approaches to resource management are practiced. Objectives include the development of an understanding of: 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, and past and present uses of natural resources; economic factors (*local, regional, and external*); ownership patterns; attitudes and other factors that affect change and their historical bases, and legal basis for enforcement of environmental policy. The course also introduces subjects such as the major constituencies which affect conservation (*NGO conservation groups, economic interests, etc.*) and their underlying philosophies.

EE (SS) 303 Economic and Ethical Issues in Sustainable Development develops 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, the government, and private, national, and bilateral aid agencies will be examined as constraints for the implementation of sustainable development models. We will address the problem of designing and setting up sustainable development models with communities. 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.

Academic Credit

SFS participants are registered at and receive credit from Boston University in Boston, Massachusetts, which accredits SFS programs. The only exceptions are students from SFS Affiliate and Consortium schools who receive credit directly from their home institutions. (Students from these schools should see sections regarding Affiliate schools and on Page 31 regarding Consortium schools).

A non-refundable registration fee of \$150 for semester programs and \$100 for summer courses is due from all SFS students 10 days after acceptance into the program.

All SFS courses are approved and assigned course numbers by Boston University. SFS semester programs incorporate four courses and carry a total of 16 semester credits in biology or environmental studies from Boston University. Summer courses carry 4 semester credits in environmental studies. Approximately six weeks after the conclusion of the program, you will receive an official transcript from Boston University. Many students have arranged either to transfer credit from Boston University or to receive credit directly from their home school.

The following is a partial list of the home schools of previous SFS participants. Over 200 institutions, including the majority of these schools, have accepted or awarded credit for SFS participation. As the final decision regarding credit transfer rests with your home institution, you should check with your advisor/ registrar before going into the field. If you have questions on credit, please call the SFS Admissions Office and we may be able to direct you to someone on your campus who is familiar with credit transfer for SFS programs. Many schools award credit on a case by case basis and credit granted to previous students does not imply automatic credit approval.

Allegheny College ⁺	Macalester College	University of Cincinnati
American University	McGill University	University of Colorado
Alma College	Miami University ⁺	University of Connecticut
Amherst College	Michigan State University	University of Florida
Auburn University	Middlebury College ⁺	University of Georgia
Barnard College	Mills College	University of Iowa
Bates College	Mount Holyoke College ⁺	University of Kansas
Baylor University	Muhlenberg College	University of Maryland
Bennington College ⁺	New York University	University of Massachusetts
Binghamton University	Northern Arizona University	University of Miami ⁺
Boston College	Northeastern University	University of Michigan ⁺⁺
Boston University ⁺	Northwestern University	University of Minnesota
Bowdoin College	Oberlin College	University of New Hampshire
Brandeis University ⁺	Occidental College	University of North Carolina
Brown University	Ohio State University	University of Pennsylvania
Brigham Young University	Ohio University	University of Pittsburgh
Bryn Mawr College	Ohio Wesleyan University	University of Puerto Rico
Bucknell University	Oregon State University	University of Puget Sound
Carnegie Mellon University	Pacific Lutheran University	University of Redlands ⁺
Case Western Reserve University	Pennsylvania State University	University of Rhode Island
Claremont McKenna College	Pepperdine University	University of Richmond
Clark University ⁺	Pitzer College	University of San Diego ⁺
Colby College ⁺⁺	Pomona College	University of Southern California ⁺
College of Charleston	Providence College	University of Tennessee
College of the Holy Cross	Purdue University	University of the South
College of Wooster	Reed College	University of Utah
Colorado College	Rice University	University of Vermont
Colorado State University	Rutgers University	University of Victoria
Connecticut College ⁺	Saint Lawrence University	University of Virginia
Cornell University	Saint Michael's College	University of Wisconsin
Dalhousie University	Saint Olaf College	Vanderbilt University
Dartmouth College	Salem State College	Vassar College
Davidson College ⁺	Santa Clara University ⁺	Villanova University
Denison University ⁺	Scripps College ⁺	Wake Forest University
DePauw University ⁺	Skidmore College	Washington University
Dickinson College ⁺⁺	Smith College	Washington and Lee University
Drake University	Stanford University	Wellesley College
Drew University	S.U.N.Y. College of Environmental Sciences and Forestry ⁺	Wells College ⁺
Duke University	Swarthmore College	Wesleyan University
Earlham College	Texas A&M University	Wheaton College
Emory University	Trinity College ⁺	Whitman College ⁺
Franklin and Marshall College	Trinity University	Willamette University
Georgetown University	Tufts University	William Woods College ⁺
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Hamline University	University of California/Santa Barbara	
Hampshire College	University of California/Santa Cruz	
Harvard University	University of California/San Diego	
Humboldt State University		
James Madison University		
Kenyon College ⁺		
Knox College		
Lehigh University		
Lewis and Clark College		

⁺ Member of Sustainable Development Studies Consortium (please see page 31 for details)

⁺ SFS Affiliate School

The SFS Affiliate Program

The SFS Affiliate Program was initiated to help students maximize their SFS experience by building better linkages to the academic community from which SFS students are drawn. Students from Affiliate institutions receive preferential admission and financial aid from SFS. The home schools typically provide direct academic credit for SFS participation and have curricular input into the SFS program. An SFS liaison has been identified at each affiliate school who is available to provide on-campus advising on SFS programs. Applicants from Affiliate schools must obtain permission to participate from their campus Affiliate Representative. The current SFS Affiliate Members are:

Bennington College - Dr. Kerry Woods	Santa Clara University - Dr. Dennis Gordon
Boston University - Dr. Coker Cleveland	Scripps College - Ms. Valerie Eastman
Brandeis University - Dr. Anita Sella	SUNY College of Environmental Sciences and Forestry - Dr. Neil Rugler
Clark University - Dr. Todd Livdahl	Trinity College - Ms. Nancy Collins
Colby College - Dr. David Fanning	University of Miami - Dr. Dan Dittesi
Connecticut College - Ms. Shirley Parson	University of Michigan School of Natural Resources and Environment - Ms. Elizabeth Lill
Davidson College - Dr. Mike Dorcas	University of Redlands - Dr. Ben Dillow
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Grinnell College - Dr. Richard Bogle	William Woods College - Dr. David Schmidt
Kenyon College - Dr. Ray Heidhaus	
Miami University - Dr. Don Kaufman	
Mount Holyoke College - Ms. Joanne Picard	

Requirements for Admission

We are seeking a body of curious students with a thirst for learning and the maturity and personal initiative to make use of our unique educational opportunities. Our goal is to create well balanced teams of students who will best benefit from and contribute academically and socially to this experience. Applicants should also exhibit enthusiasm, character, compassion, flexibility and social concern, as well as a willingness to, at times, put the needs of the group ahead of your own. The essay in which you define your motivation for participating in an SFS program is a strong determining factor in the admission process.

Participants are screened by the Admissions Committee to insure that they are choosing the appropriate course for the right reasons and that they have the background necessary for a successful academic and personal experience. The Committee strives to bring together students from diverse academic, economic, cultural and social backgrounds, with varied interests and talents, who support the mission of The School and are committed to working with others toward a common goal. If you are willing to commit your emotional, intellectual, and physical energies to working toward a better understanding of critical environmental issues, we encourage you to apply to join us.

Before completing your application for admission, carefully consider the fact that this experience will likely be very different from your academic experience to date. We are setting off together on a journey during which we ask that you consider yourself to be crew, not a passenger. We expect and encourage you to take a proactive role in all aspects of your education from scheduling activities, to choosing research projects, to managing risk.

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.

Acceptance

Applications for all programs are reviewed on a rolling admission basis, as soon as all required information is received. The Admissions Committee meets on the 1st and the 15th of every month, and more often during peak application periods. Teams fill quickly. We strongly urge you to apply early to join the course of your choice. Waiting lists are maintained for courses that fill early.

All acceptances are contingent upon medical approval. Course syllabi will be sent to all accepted applicants and are available upon request.

HOW TO APPLY

An Application for Admission and SFS Reference Form can be found at the back of this catalogue.

All applicants for admission are required to submit an SFS application form and essay, a \$35 application fee and an SFS reference form before the application will be reviewed. In addition, all applicants must submit an official current transcript to complete their application

Applicants for semester programs must be at least 18 years of age and have completed at least one college-level ecology or biology course and, preferably, at least one semester of college.

Applicants for summer courses must be at least 16 years of age and have completed at least the junior year in high school.

For further information regarding admission, please call the SFS Admissions Office at

1-800-989-4418

Financial Aid

We are committed to involving as many qualified students as possible in SFS programs and will work with you to facilitate your participation. **Thanks to generous support from foundations, corporations and individuals, one in three SFS students received financial assistance through SFS in 1999.**

SFS Financial Aid, in the form of scholarships and/or interest free loans, is available to qualified students based on need. For the 1999-2000 academic year, we expect to have over \$300,000 in scholarship and \$275,000 in loan funds to make the SFS experience accessible to over 225 students facing financial challenges. Some applicants receive a combination grant and loan while others receive only loan funding. In addition, many applicants receive aid through their home schools or other outside sources as well. 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 in a summer or semester program, we strongly encourage you to request, complete and return an SFS Financial Aid Application as

soon as possible. **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: We expect that you and your parents will contribute at least the same amount that you are paying per semester at your home school, and more if you are able. A growing number of schools allow students to take some or all of their 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 Stafford 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 may 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 ask your financial aid officer to give us a call and we will do our best to assist you.

Expectations and Responsibilities

Changes and Cancellations

SFS programs are obviously different from travel or adventure programs. We have tried to give accurate portrayals of every program in this catalogue. All course descriptions have been written in consult with faculty members. However, each project is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control.

For example:

- ♦ Over half of our projects take place in highly regulated and sensitive environments, usually requiring special permits, such as in Kenya and Mexico.
- ♦ Some projects depend on the goodwill and generosity of individuals and institutions which lend support.
- ♦ Tenuous weather situations, natural disasters or changes in political conditions in another country may require last-minute changes in sites or research plans.

You are advised that these or other variables (*including staffing*) may result in changes before or during a course. As the course catalogue is often written up to a year before a program actually goes into the field, students should rely on their program syllabus for up-to-date course descriptions. Indeed, part of your challenge lies in adapting to changing conditions and overcoming the obstacles they may present. In other words, the elephants are not always where we want them to be, so please be flexible.

Student Conduct

You are expected to conduct yourself in a mature and responsible manner. SFS reserves the right to require any participant to withdraw from any program at any time if the faculty deem the student's conduct to be detrimental to or incompatible with the interest, harmony, comfort or welfare of the course — including use of alcohol or drugs not authorized by a medical doctor, or uncooperative or disruptive behavior. Should such a decision be made, SFS will notify your parents and return you to the point of course departure, at which time any and all responsibility on the part of The School for Field Studies will cease.

Responsibility

In organizing and managing these courses, The School for Field Studies (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 regulation, 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.

The School for Field Studies is a charitable corporation located in Beverly, Massachusetts, U.S.A. All matters relating to or 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 he/she is deemed unsuited for the project for any reason. All courses, fees, and dates are tentative until verified and confirmed in writing by The School for Field Studies.

The School for Field Studies 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 The School 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.



"What a first-rate, first-hand experience it was. Culturally, academically, socially, personally and spiritually I can honestly say I'm enriched. I am now able to state more clearly the reasons conservation is so important and also the complications that come along with it."

Sanjeeve Martyn, Winchester, MA -
Cornell University

Scholarship Donors

Generous support from numerous individuals and the following have made the SFS Financial Aid Program possible:

The Andreas Foundation

The Charles Engelhard Foundation

The Hunt Foundation

The Merck Family Fund

The Curtis and Edith Munson
Foundation

The Laurance S. Rockefeller Trust

The Explorers Club

Archer Daniels Midland Company

"I would like to thank the SFS Student Scholarship Fund and its donors. Without the financial aid I was awarded I would have been sitting at home and missing out on the greatest summer of my life."

Matthew Finer,
Lancaster, PA -
University of
Pittsburgh

Tuition, Costs and Refund Policies

Fees, Tuitions and Deposits

Like other non-profit, tax exempt educational institutions, SFS meets its expenses with a combination of tuition charges and income from grants and donations. Your tuition pays for instruction, room and board, and ground transportation during the course. It also covers group equipment, supplies, scientific instruments and material. **It does not include transportation to and from departure point.**

A non-refundable deposit of \$350 for summer courses or \$500 for semester programs is due no later than 10 days following acceptance in order to reserve a place in the program. All students will be registered for academic credit. A non-refundable registration fee of \$100 for summer courses or \$150 for semester programs is due with your deposit. *(Deposits and registration fees for financial aid candidates are non-refundable 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.)*

Full tuition is due sixty days prior to course departure. You will not be allowed to participate in the program with an outstanding tuition balance. **Note:** The tuition fees listed in this catalogue are based on estimates made up to a year in advance of departure and involve many variables - currency rate, outside project support, enrollment projections, etc. - all of which may change. The tuition for each program is tentative until confirmed in writing by SFS.

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

Transportation and Travel Arrangements: To insure orderly arrival at the site as well as low fares, we work with one travel agency to handle all travel. This agent will arrange travel to the program, with any special arrangements you require. If you do not use the SFS agent, you **must** have your travel plans approved by the SFS Admissions Office. You will receive specific travel details after your acceptance. You are responsible for passport/visa fees as well as all transportation costs to and from the departure point.

Tuition

SFS Fall and Spring Semester Programs:

Marine Resource Studies/BRITISH WEST INDIES	\$12,325*
Tropical Rainforest Studies/AUSTRALIA	\$12,925*
Conserving Coastal Ecosystems/BAJA, MEXICO	\$12,420*
Coastal Rainforests and Marine Resources/CANADA	\$12,125*
Sustainable Development Studies/COSTA RICA	\$12,420*
Wildlife Management Studies/KENYA	\$13,150*

** Tuitions listed are for Spring 2000 programs. Fees for Fall 2000 and Spring 2001 will be announced in Spring 2000.
(All semester programs have an additional \$150 registration fee).*

Summer 2000 Programs (30 Days)

(All summer programs have an additional \$100 registration fee)

Marine Parks Management/BRITISH WEST INDIES	\$3,275
Tropical Reforestation/AUSTRALIA	\$3,475
Preserving Coastal Diversity/BAJA, MEXICO	\$2,975
Conserving Marine Resources and Coastal Rainforests/CANADA	\$2,975
Strategies for Sustaining Tropical Ecosystems/COSTA RICA	\$3,150
Community Wildlife Management/KENYA	\$3,795

Financial Aid is Available, please see Page 38 for details.

Clothing and Equipment: SFS will provide food, cooking equipment, tents and all scientific and research equipment. You are responsible for personal gear including sleeping bags, backpacks, clothing, SCUBA gear *(if applicable)*. You may find you already have much of what you need.

Physical Examination and Medical Insurance: You must present a completed SFS Medical Form, signed by a doctor, no later than 30 days before program departure. Students with late medical forms may forfeit their space. All medical forms must be approved by the SFS Medical Committee. 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 up-to-date medical coverage and a signed medical release.

Refund Policies

Summer Courses: Registration fees are non-refundable and non-transferable. Deposits are non-refundable. If you withdraw prior to 21 days before the start of the course, it may be possible to transfer your non-refundable deposit to another SFS program within a 12 month period. If you withdraw 21 days or less before the start of your course, SFS will retain 50% of the course tuition. No refunds are made once the course has begun.

Semester Programs: Registration fees are non-refundable and non-transferable. Deposits are non-refundable. If you withdraw more than 30 days prior to the start of the program, SFS will retain 50% of the program tuition; it may be possible to transfer your non-refundable deposit to another SFS program within a 12 month period. If you withdraw from a course 30 days prior to the program commencement to 14 days after the program departure, SFS will retain 75% of the tuition. No refunds are made after the second week of the program or to students asked to leave the program.

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The
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SFS CENTERS AND PROGRAMS

The Center for Marine Resource Studies – BRITISH WEST INDIES

Semester Program: *Marine Resource Management*

Summer Course: *Marine Parks Management*

The Center for Rainforest Studies – AUSTRALIA

Semester Program: *Tropical Rainforest Management*

Summer Course: *Tropical Reforestation*

The Center for Coastal Studies – BAJA, MEXICO

Semester Program: *Conserving a Critical Coastal Ecosystem*

Summer Course: *Conserving Coastal Diversity*

The Center for Coastal Rainforest and Fisheries Studies – PACIFIC NORTHWEST CANADA

Semester Program: *Coastal Rainforests & Marine Resources*

Summer Course: *Conserving Marine Resources & Coastal Rainforests*

The Center for Sustainable Development Studies – COSTA RICA

Semester Program: *Studies in Sustainable Development*

Summer Course: *Strategies for Sustaining Tropical Ecosystems*

The Center for Wildlife Management Studies – KENYA

Semester Program: *Wildlife Ecology & Management*

Summer Course: *Community Wildlife Management*