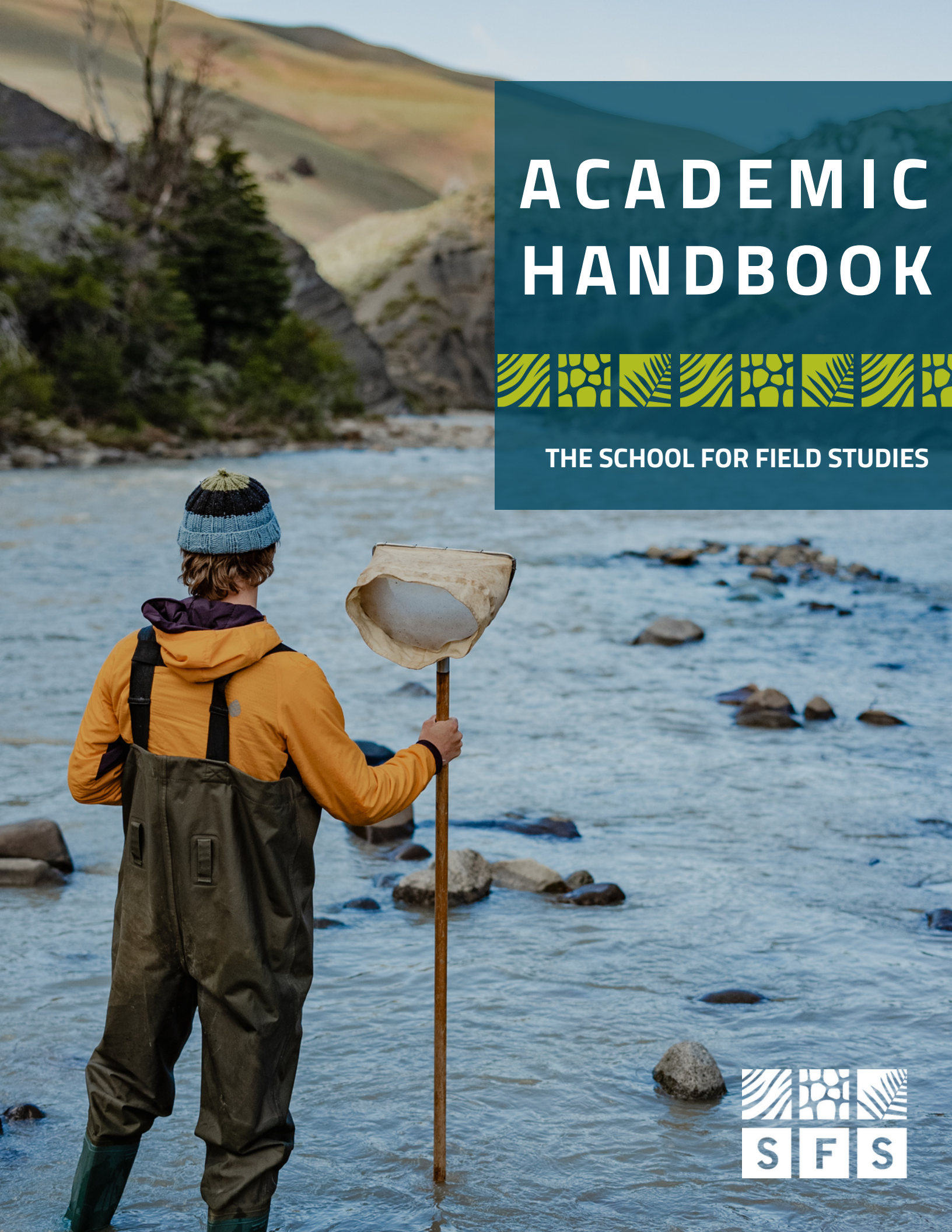
# ACADEMIC HANDBOOK

THE SCHOOL FOR FIELD STUDIES



# CONTENTS

# SFS MISSION AND MODEL

SFS creates transformative study abroad experiences through field-based learning and research. Our educational programs explore the social and ecological dimensions of the complex environmental problems faced by our local partners, contributing to sustainable solutions in the places where we live and work. The SFS community is part of a growing network of individuals and institutions committed to environmental stewardship.

The School for Field Studies offers semester and summer programs at field stations around the world. The academically rigorous and interdisciplinary curriculum of each program is designed to allow students to actively discover and understand the complexities of local environmental, social, and economic issues. Through teaching and research, center faculty and staff introduce students to field research methods, data collection, and analysis, and they promote student interactions and reciprocity with local communities. The curriculum and research projects are driven by local needs and interests. SFS programs integrate academic, research, social, and community activities in a holistic education model.

# SFS CENTERS

SFS students, faculty, and staff live and work together at our twelve field Centers around the world. Locations range from deep in the heart of the Australian rainforest to the tropical coastline of Panama, and each offers its own distinct experience in the surrounding ecosystems. Regardless of where you go, you'll become part of a community and discover a lifestyle unlike anything you've ever experienced.


Each Center operates under a Strategic Research Plan (SRP). The SRP is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty and is influenced by local stakeholders and actors, and external researchers. It also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

Each Center's research focus and a summary of their Strategic Research Plan can be found at the end of this document.

# PREPARING FOR DEPARTURE

## REQUESTING LEARNING ACCOMMODATIONS

Students requesting learning accommodations should submit those accommodations to the SFS Office of Academic Affairs prior to the start of the program through their online application. Once submitted, the SFS Office of Academic Affairs will provide a confirmation letter confirming your requested accommodations or follow up with questions or clarifications. SFS will work with students and home institutions to assess student accommodations and whether they can be safely and reasonably maintained on program. Accommodations are not approved until you receive an official letter from SFS.

Approved accommodations will be shared with Center faculty and staff, so they can prepare to best support you, but you will want to speak with individual faculty at the Center as soon as you arrive to arrange a mutual understanding of your accommodations. **Providing a copy of your SFS accommodations letter may be useful.**

Please be aware that due to the structure and schedule of our programs and the routine travel off campus, SFS may not be able to provide the same accommodations students receive at their home school. Additionally, the level of academic support services to which students may have access at their home campus may not be available with SFS. If students have used general academic services on campus, such as a writing center, math/technology center, or tutoring center and anticipate continued access while on an SFS program, please contact the Office of Academic Affairs. They can advise students regarding the level of academic support at SFS Centers and on managing the rigors of an SFS experience.

Contact the Office of Academic Affairs with any academic related questions or concerns at academics@fieldstudies.org.

## E-LIBRARY

Students should plan to rely on the databases and online library from their home institution during an SFS program. SFS does not provide additional access to any e-library resources. Before arriving in-country for an SFS program, students should make sure they know their remote library log-in and password, understand their home school's policy on accessing library materials remotely, and configure their laptop to access their school's online libraries and e-journals before they arrive in the field.

Students unable to access their institution's e-library while abroad or are unaffiliated with an institution during their time abroad should discuss this with their SFS Admissions Counselor or inquire with academics@fieldstudies.org.

## CREDITS AND CREDIT TRANSFER

SFS courses are accredited through the University of Minnesota: Twin Cities (UMN). Each of our courses has been vetted and approved by the faculty curriculum committee at the University of Minnesota. Students are automatically enrolled in all courses for their program. UMN operates on a semester calendar, and all SFS courses are accredited accordingly. Credit potential varies, depending on program term and course load at the Center:

- Summer programs (4-weeks): 4 credits
- Summer programs (6 weeks): 6 credits
- Semester programs: 16-18 credits

The amount and type (major, minor, elective) of credit students receive for coursework done on an SFS program is determined by their home institution.

SFS cannot guarantee that students will receive credit for their SFS participation from their home institution. Students should not assume that a prior student's success with credit transfer is a guarantee that their credits will transfer as well. It is the responsibility of the student to arrange credit transfer with their home school prior to participating in an SFS program. Students intending to receive academic credit at their home institution should speak with their academic advisor and/or study abroad office about how to best proceed. Students should allow time to have their SFS program and individual courses approved by their advisor and other appropriate personnel before the start of the program.

# ACADEMICS WHILE ABROAD

## FIELD EXPERIENCE

An important component of the SFS learning model is hands-on field experience. Field lectures, exercises, and research help students to connect the conceptual material presented in the course to local realities, learn field research techniques, collect, and analyze field data, and develop holistic and critical thinking skills. Many field-based academic activities on an SFS program take place outside; however, the actual amount of time spent outside will vary depending on the weather and other factors.

## CLASSROOM EXPERIENCE

While much time is spent in the field during an SFS semester, each program combines theory learned in the classroom with these field-based applications. Students should be prepared to spend time in the Center's classroom spaces for lectures, class discussions, and presentations. Time in the classroom is structured to give students a solid understanding of environmental history, theory, and conservation techniques before deploying their knowledge or specific techniques in the field. Classroom sessions may include lectures, debates, discussions, and presentations, all designed to give students the confidence to tackle environmental issues – both in the field and wherever their next adventure takes them.

## EXPECTATIONS

At SFS, we aim to create an academic atmosphere that encourages learning and involvement both inside and outside of the classroom. All students are expected to actively participate in all elements of an SFS program, including all SFS courses, field research, residential life, and community engagement. Students on SFS programs come from a wide range of colleges and universities, as well as from a variety of academic backgrounds and majors, such as, ecology, biology, economics, English, political science, anthropology, and many others. This diversity of backgrounds is a strength of SFS programs and a learning opportunity for all students. At SFS students are intellectually challenged by their faculty, classmates, and the community, while studying in an unfamiliar area. Students can take a leadership role in those subjects in which they have expertise. Students are expected to critically analyze the drivers of local environmental, social, and economic problems. Semester students also participate in field research and communicate their findings with the goal of providing information to local decision-makers who can address those problems.

Because SFS is a residential study abroad experience, credit is given for program completion, not just course completion. Attendance from the start of the program to the last day of the program is necessary for students to earn credit.

## STUDENT PARTICIPATION

SFS gives credit for program completion, and completion means more than just "presence on a program." It means fully engaged learning, participation in academic and non-academic activities and exercises, and completion of academic tasks and assignments – in the field and in the classroom. The constituents (sending schools or home institutions) and the School of Record for SFS expect that the credit a student earns while at SFS is a result of full participation and successful completion of demanding field-based academic work and all components of an SFS program. All students must participate fully in all Center program activities (academic and non-academic). Repeated voluntary lack of participation (missing class, refusal to perform activities or exercises) or repeated involuntary lack of participation (being physically unable to perform activities or exercises due to illness or injury) may result in student removal from program.

## SYLLABI

**Students will be presented with course syllabi once they arrive at their SFS Center and exact syllabi for future terms are not available in advance.** Sample syllabi from previous semesters are available on the SFS website and can be viewed and downloaded from the specific program page. When reviewing the sample syllabi, please note that SFS programs are different from other travel or study abroad programs. Each iteration of a program 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:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;
- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;
- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that may be present. Students are encouraged to review these sample syllabi and can also find examples of previous research projects on the SFS website.

# GRADING

SFS courses are rigorous, challenging, and the field based approach mandates that students demonstrate their knowledge of theory and practice by applying such theory and practice to actual problems. Because SFS exams are based on the application of knowledge and the synthesis of concepts and observations, the courses are generally thought of as difficult.

Grades are determined via various assessments, such as exams, quizzes, practical examinations, field exercises, presentations, homework, and final papers. The specific grading guideline for each course will be presented in the course syllabus, which students will receive upon arrival at the SFS Center. Grading will not be exactly the same as students are accustomed to on their home institutions—many students are surprised that different faculty have different grading strategies and that there can be cultural differences, as well. Students are encouraged to engage with their SFS faculty at the beginning of the semester with any doubts or uncertainties about the grading system.

After a student departs a program (i.e., when the student physically leaves the Center), the only grade changes SFS will consider are those which involve mathematical or transcription errors.

**Note that SFS follows the University of Minnesota grading scale for courses**, which may differ from a student's home institution's grading scale. This scale, along with other detailed grading policies can be found in the Academic Policies and Procedures section.

# CONTENT STATEMENT

Every student comes to SFS with unique life experiences, which contribute to the way various information is processed and their understanding of issues. As many SFS courses showcase and grapple with the complexity of many modern issues, some course content may be intellectually or emotionally challenging, but content of this nature has been intentionally selected to achieve certain learning goals. If students anticipate a challenge engaging with a certain course topic or find they are struggling with certain discussions, we encourage students to talk about it with faculty, friends, family, the on-site Health and Wellness Manager, or access available mental health resources and find solutions that support both learning and wellbeing.

# SEMESTER PROGRAMS

## Core Disciplinary Courses

In semester programs, three core disciplinary courses provide the background information and skills needed to understand and address complex environmental issues. Each course is designed to provide students with transferable academic credit according to the U.S. University and College system. Courses are participatory in nature and are designed to stimulate inquiry and active learning. Faculty members provide students with an interdisciplinary and holistic framework for their process of inquiry into environmental and socioeconomic issues. Problem-based inquiry guides students through an analysis of actual local environmental situations or dilemmas. Throughout the integrated curriculum, students strive to understand the background, context, and relevance of local issues well enough to enable them to explore potential solutions and alternatives through research and critical thinking. Each course combines lectures, field exercises, assignments, tests, and research.

## Language and Culture Course

In semester programs, some Centers offer a two-credit language and culture course. The purpose of this course is to introduce students to local culture and language to facilitate a deeper comprehension of how culture influences policy and perceptions of natural environments. This course aims to familiarize students with cultural understandings and practices relating to resource management, environmental policies development and natural space use. Students will learn specific strategies and skills for working with people in a community-based context particularly as it relates to conservation work, assist with community outreach and engagement projects, and develop a more refined understanding of culture. The language component of the course is meant as a basic primer for simple words and phrases. Under no circumstances should a student expect to become proficient after the twenty hours of language instruction offered during this class.

## Directed Research

The 4-credit Directed Research (DR) course (SF S4910) is the capstone of the semester program. The course is designed to introduce you to conducting scientific research – developing a question, collecting and analyzing data, writing a paper, and presenting your findings. The course is offered on all semester programs and takes place during the last 4-6 weeks of the semester.

Students conduct research projects that address the key research themes defined in the Strategic Research Plan (SRP) and support the community with environmental planning and action. Projects are carried out in one or more disciplines including: ecology, natural resource management, conservation science, environmental ethics, and socioeconomics. **Students do not choose their own research theme but will work on one of several ongoing projects identified by the Center staff and developed and led by SFS faculty.** Students will be able to indicate their preference between several areas of research.

Each student will join a faculty-led team that will develop a specific question and carry out field research, data analysis and communication of results. DR data is often collected and analyzed as a team. Students, either individually or in small collaborative groups, will develop findings and incorporate those into their papers (see Directed Research sample syllabus for more details). Final papers may be written individually or in small groups, depending on the structure and dynamic of each project. The core skills students will learn through the DR experience are field skills, analytical skills, communication skills, and critical thinking, as well as teamwork and time management. Students present their findings from their DR to classmates, key stakeholders, and other community members.

## Directed Research FAQ

### *What is Directed Research?*

Directed Research is "directed" because it is led by our full-time, on-site faculty members, who are themselves full-time faculty and active scholars in their fields of study. Therefore, the faculty member is the principal investigator on all studies and students act as mentees, learning the process of research. DR projects are designed in conjunction with local stakeholders to address resource use or other environmental questions that are important to the community. Most DR projects build upon past projects, as one semester is usually too short of a time to address most environmental issues. This model is highly beneficial for students, as they can build on the long-term research that occurs at the Center over many semesters and is often coordinated with a community partner.

### *Will I be able to choose a specific research topic/question?*

As Directed Research projects are often based on long-term studies or are responding to local community needs, designing a Directed Research project around a student's specific research/capstone needs is generally not possible. However, students will be able to choose from multiple projects and can indicate a preference for a specific project. Additionally, some Directed Research projects may be able to expand with specific sub-questions to follow student interests, but these determinations are generally made throughout the course of the semester rather than in advance. If students have specific interests for Directed Research, early communication with on-site faculty is key!

### *How are Directed Research questions decided? How much input do students have on the research question?*

In terms of research question development, this happens differently depending on SFS Center, faculty research trajectory, and student interests. Sometimes, faculty present a research project with a fixed question because it fits into their long-term monitoring work. Other times, a broad research question has room to expand into "sub-questions" that students might

collaboratively develop with the faculty member. Projects might support a single student or a group of students, depending on the complexity of the question. Regardless of the project scope, our focus is on giving students the opportunity to engage with the whole research process through a collaborative mentoring relationship with the faculty member.

*How are Directed Research groups decided?*
Directed Research project groups are typically selected midway through the semester. Faculty advisors, projects, and groups are assigned through an on-site process in which faculty present projects to the student group, students rate their preferences for projects, and students are assigned accordingly. This process may vary slightly at different SFS Centers. Professors do their best to assign students to their top choices, but because of the nature of field-based research, and faculty aiming to maintain low professor-to-mentee ratio on projects, students are not guaranteed to join their top-choice project. If students communicate with the faculty at the beginning of the term about any potential goals for a thesis/capstone, faculty will best be able to support those students.

*Can I use my Directed Research project for my honors thesis/capstone class at my home school?*
This is a highly variable situation, dependent on the requirements of the student's home school and the Directed Research projects available at each Center. SFS certainly encourages students to pursue scholarly capstone opportunities, such as a thesis, after their SFS semester. However, early planning and clear communication is key. Students should share the relevant sections of this handbook with their home school advisor before their semester begins and discuss what may or may not be possible given their home school and SFS guidelines. If a student hopes to be able to use their Directed Research experience for a thesis or capstone, students must clearly communicate with the SFS faculty advisor during the semester, so they are aware of the student's motivation and can help match the student to a project suitable for a thesis project. You can review past projects here. **Please read the Intellectual Property guidelines later in this document.**

*Can I publish my Directed Research paper? Can I continue to work on my research after the semester?*
As the principal investigator, data produced during Directed Research projects is the intellectual property of SFS and the faculty member leading the project. Most often, faculty are thrilled to see students continue the work they started on program, but faculty may also have plans for the data related to longer-term research or a manuscript they are working on and prefer to keep the data at the Center. This doesn't mean that future work with the data is impossible, but it does mean that **permission from the SFS faculty member must be granted for you to continue to work with that data**, and if granted, that you continue to communicate with the SFS faculty member on the project. The earlier students communicate with the faculty when are on program, the more easily they can match students to projects that can be extended beyond the semester. **Please read the Intellectual Property guidelines later in this document.**

*Why is intellectual property important?*
The research conducted at SFS Centers emphasizes the interests of local stakeholders and directly addresses regional environmental issues. Our neighbors share their stories, observations, and needs, and in return we provide valuable data directly back to community leaders, local environmental groups, and government agencies, allowing them to make informed and sustainable policy decisions. Beyond protecting the intellectual pursuits of our faculty, who are full-time active researchers, our intellectual property guidelines help us proactively counter a history of extractive environmental research in the countries where we work and avoid intentional or unintentional intellectual theft from our host countries.

# SUMMER PROGRAMS

In each summer program, one interdisciplinary course provides the background information and skills needed to understand and address complex environmental issues. These courses are designed to provide students with transferable academic credit according to the U.S. University and College system. Courses are participatory in nature and are designed to stimulate inquiry and active learning. Faculty members provide students with an interdisciplinary and holistic framework for their process of inquiry into environmental and socioeconomic issues. Problem-based inquiry guides students through an analysis of actual local environmental situations or dilemmas. Throughout the integrated curriculum, students strive to understand the background, context, and relevance of local issues well enough to enable them to explore potential solutions and alternatives through critical thinking. Courses combine lectures, field exercises, assignments, and tests.

## "Summer Combined"

Some Centers offer two different 4-week summer courses. Students may enroll in one or both summer courses. Students also have the option of transferring between Centers - participating in a course during the first summer session at one Center and then traveling to a different SFS Center for the second summer session.

Students that participate in two summer courses (sequential or "summer combined" students) will receive eight total credits for the combined summer sessions.

Note that students who participate in the Bhutan or Cambodia six-week summer course are not eligible for a summer combined schedule.

Please visit our website (https://fieldstudies.org/) for a detailed description of courses at each Center.

# AFTER YOUR SFS PROGRAM

## OFFICIAL TRANSCRIPTS

SFS grants credits for all courses completed and will automatically initiate the transcript process for you upon your return from abroad.

### *From where do I receive credit?*

Depending on your home school requirements, you will receive credit either directly from SFS or from the University of Minnesota (UMN), our school of record. You do not need to take any action for this step. If your school requires credit from UMN, SFS will automatically enroll you at UMN at the start of the session. When your transcript is delivered, **take note of where your credit comes from** in case you need to order additional transcripts in the future.

### *Where is my transcript sent?*

If your home institution receives SFS transcripts directly, your transcript will be sent automatically via Parchment, a widely used electronic transcript delivery service, to the email address provided to SFS by your home institution.

If your home institution has requested an official UMN transcript, it will be your responsibility to order your UMN transcript at the end of your program and have it sent to the correct address at your home institution. You will receive an email once your grades have been processed that explains how to order your UMN transcript and that includes the preferred address to which your home institution wishes transcripts to be sent.

### *When will my transcript be sent?*

For semester programs, your official transcript will automatically be sent within 4-6 weeks after the completion of the semester.

For all summer programs, your official transcript will automatically be sent within 4-6 weeks after the end of the **second** summer session.

### *How much do transcripts cost?*

Costs for transcripts are included in your tuition. During the transcript delivery process, you may receive an automated email from Parchment, a widely used electronic transcript delivery service, explaining how to set up an account and pay to receive your grades. **You DO NOT need to pay to receive your transcripts.** Both SFS and the University of Minnesota provide free transcript processing to students, both for initial and future transcript requests.

### *What if I need additional transcripts in the future?*

Visit this page for more information on how to request additional transcripts. The process for requesting additional transcripts varies based on from where you originally received your credit (SFS or UMN) and this page will always have the latest information. When your original transcript is delivered, **take note of where your credit comes from** in case you need to order additional transcripts in the future. Currently, SFS does not offer unofficial transcripts. All additional transcript requests from SFS must be for official transcripts. www.fieldstudies.org/alumi/transcripts

### *Transcript questions?*

All questions regarding transcripts can be sent to the Office of Academic Affairs at academics@fieldstudies.org.

## ACCESSING SFS MATERIALS AFTER THE PROGRAM

SFS does not keep copies of written papers, homework assignments, research reports, and other handouts from the faculty. These materials cannot be reconstructed after students return from the field. As such, SFS recommends that students keep copies of any materials such as written papers or handouts that they may wish to access after the program has concluded.

## REQUESTING REFERENCES FROM SFS FACULTY

Some students request references from their SFS professors for graduate study or fellowship applications. Faculty are not obligated to write a student a letter of recommendation, and the decision to write the letter will be based on the professor's workload and student's SFS performance. Students are responsible for maintaining the contact information of their faculty and Center Directors. Since SFS instructors are frequently in the field engaged in teaching or research, it may be difficult to contact them—expect a delayed turnaround time and plan accordingly.

## REPRESENTING SFS ON YOUR RESUME

Upon completing an SFS program, you will have several skills and experiences that should serve you in your future studies and professional endeavors. SFS will have given you specific skills in intercultural competence, foreign language, field research, and data analysis that will make your résumé stand out. Thus, SFS encourages you to take full advantage of the SFS experience by representing your participation in the program on your résumé or curriculum vitae. See below for preliminary ideas:

**Education**

Study abroad: The School for Field Studies (SFS), [Name of course], [Name of SFS Center], [Location] (# credits, University of Minnesota: Twin Cities), [Program date].

E.g. The School for Field Studies (SFS), Tropical Rainforest Studies, Centre for Rainforest Studies, Queensland, Australia (16 credits, University of Minnesota: Twin Cities), Fall 2008.

**Field Experience**

[Year of experience] "[Title of your DR project]", [brief description of the skills you developed; e.g., field survey of birds in forests and roadsides, scientific presentation]. [Location], [Time span; e.g., July-Aug].

E.g. 2008 "Growth rate of *Calycophyllum spruceanum* in fields and forests," experimental design, field data collection, scientific writing and oral communication. Peru, Sep-Dec.

# ACADEMIC POLICIES AND PROCEDURES

As a condition for participation in an SFS program, students are required to document that they have read, understood, and accepted all academic, behavioral, safety, administrative, and operational policies, rules, and requirements in this document and in **SFS Policies and Procedures** by reading and signing the SFS Enrollment Contract during your application process.

## GRADING, INCOMPLETES, AND WITHDRAWAL ON COURSES

### Credit Policy

SFS does not grant partial or incomplete credit. Due to the interdisciplinary nature of our programs, students must be present from the first day of orientation to the last day of wrap-up and presentations in order to receive credit for all courses. SFS gives credit for program completion, not just course completion. Attendance from the start of the program to the last day of the program is necessary for students to earn credit.

### Grading Policy

Courses may not be taken on a pass/fail or audit basis. SFS will report letter grades, as determined by the SFS letter grade scale (below), to UMN and to SFS affiliate schools for every student. SFS does not "round-up" numerical grades (e.g., a final grade of 89.99% receives a letter grade of B+ and is not rounded up to 90.00, or A-).

***Letter Grade Scale***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 95.00-100.00% | B+ | 86.00 – 89.99% | C+ | 76.00 – 79.99% | D | 60.00– 69.99% |
| A- | 90.00 – 94.99% | B | 83.00 – 85.99% | C | 73.00 – 75.99% | F | 0.00 – 59.99% |
| | | B- | 80.00 – 82.99% | C- | 70.00 – 72.99% | | |

### Incompletes

In general, an incomplete is a temporary status for students who have temporarily left an academic program with the intent of completing outstanding coursework by a predetermined date. SFS programs are internationally based, field-orientated, and require fulltime on-site participation in all program activities; therefore, SFS does not grant incompletes.

### Policy for Early Departures

In the case of a student making a permanent departure from an SFS program without completing outstanding coursework, the **Credit Policy** will apply. Moreover, any student who departs from the program prior to completion will receive a “W” (“Withdrawn”) for the course. If a student must leave due to bereavement or receives a medical withdrawal, some credit may be awarded at the discretion of the Office of Academic Affairs. More information about withdrawals or dismissals from an SFS program can be found in **SFS Policies and Procedures.**

### Requesting Review of Grades

It is the faculty's responsibility to articulate how grades are determined. It is the responsibility of students, if there is a lack of clarity, to request clarification immediately, rather than after final grades or transcripts are received.

Students who feel that there are grade inconsistencies should explain their concerns first to the relevant faculty in writing while at the field site. Their explanation must be in writing and include both the reasons for requesting a grade review and the specific request. Faculty members are obligated to respond fully, clearly, and promptly to any student-grade inquiries.

If a satisfactory solution cannot be arranged between a student and their faculty while at the field site, students may make a written request for an explanation of the faculty member’s decision for presentation to the Center Director or lead faculty for further consideration. The Center Director or lead faculty will review the case with the faculty member.

If a resolution cannot be made with the Center Director or lead faculty at the field site, the petition for a grade change will be forwarded to the Dean of the School for review. The Dean's review will generally be limited to determining whether fair standards were set and followed.

After a student departs a program (i.e., when the student physically leaves the Center), the only grade changes SFS will consider are those which involve mathematical or transcription errors.

# ACADEMIC INTEGRITY AND PARTICIPATION POLICIES

SFS places high expectations on their students and we hold students accountable for their behaviors according to the SFS honor code:

> *"SFS does not tolerate cheating or plagiarism in any form. While participating in an SFS program, students are expected to refrain from cheating, plagiarism and any other behavior which would result in a student receiving credit for work which they did not accomplish on their own. Students are expected to report any instance of cheating or plagiarism by others."*

SFS has a zero-tolerance policy towards student cheating, plagiarism, data falsification, and any other form of dishonest academic and/or research practice or behavior (including but not limited to, standards set by any college or institution with which the student is associated). As a result, any SFS student found by SFS to have engaged in or to have facilitated academic and/or research dishonesty will receive no credit (0%) for that activity. The faculty make their best efforts to clearly state whenever collaboration between students in the preparation of work is deemed acceptable and the extent of collaboration that is permissible.

In addition to the zero percent (0%) mark for the particular activity, SFS reserves the right, using its sole and unfettered judgment about the severity or recurrence of the transgression, to expel a student from any program in which the student is participating. A student who is expelled from a program may receive a grade of "Withdrawn" (W) or "Failure" (F) for each of the courses of the program. The expelled student will not be entitled to any financial refund from the program.

SFS considers it appropriate to report to a student's principal academic organization any behavior that reflects on the character, integrity and/or academic ability of a student. Therefore, when a finding of academic dishonesty has been made, SFS will report the decision, as well as the sanction imposed, to any college or institution with which the student is associated, as well as to UMN, the school of record. Through participation in an SFS program, each student shall be deemed to have expressly waived any right to prevent such disclosure that might otherwise exist in law or by contract.

Nothing in this policy shall prevent any college or institution with which the student is associated from reviewing the violation and taking actions pursuant to its own policies on academic misconduct, including its policies on sanctions or the recording of an offense on a student's record.

All staff and students are expected to understand and to actively support the standards of conduct and behavior as presented in this document (the Academic Handbook), SFS Policies and Procedures, the Field Guide, the Enrollment Contract, and information provided during the on-site program orientation. More information about student conduct requirements and disciplinary processes and procedures can be found in the **SFS Policies and Procedures**.

# INTELLECTUAL PROPERTY, DATA, AND ACKNOWLEDGEMENT POLICIES

In recognition of this institution's obligation to transfer technology and useful discoveries to local communities, fellow researchers, and society, SFS encourages the creation of scholarly works by SFS faculty, staff, and students as an integral part of its mission. This section should clarify the rules for ownership and use of data generated during the SFS program, and it presents guidelines for the production of scholarly works.

## Data and Educational Materials Ownership

SFS is the owner of all academic products developed and research data collected by students while participating in an SFS program or through the use of facilities or funds provided by or through SFS. No student may utilize these data for any purpose other than scholarly works. "Scholarly works" include, but are not limited to, the production of i) required coursework outputs, ii) reports to approved SFS clients such as Directed Research papers and related products, iii) conference presentations, and sometimes iv) publications, and v) senior theses. The use of these data by students for undisclosed and unapproved personal benefit or commercial application, financially or professionally or in any other way, is not permitted.

## Use of Directed Research Data for Scholarly Works and Thesis

Because the research projects conducted at the Center are linked to the Strategic Research Plan, and projects are defined and prioritized by Center faculty**, the SFS faculty advisor is considered the principal investigator of the project.** As a member of the research team, students who have collected data during their program period will have access to these specific data from their SFS program. Students may pursue the production of scholarly works, such as a senior thesis, using SFS research *only under consultation with and approval by the project's principal investigator* (i.e. the faculty supervising the DR project). If the principal investigator is no longer with SFS, approval may be granted by the Center Director or the Dean of the School. In some instances, collected data may not be suitable for purposes such as a thesis.

The purpose of the Directed Research (DR) project is to contribute to a broad and ongoing research agenda that has been defined by SFS staff. Therefore, SFS cannot cater the DR projects to independent student interests or academic requirements at a student's home institution. Similarly, since the DR paper and other research assignments are works produced for an SFS course, students must hand in original work, therefore we generally cannot accommodate using data from research conducted at the home institution.

For students hoping to develop some aspect of their SFS Directed Research into a thesis at their home institution, the responsibility for seeking clarity on research requirements from SFS and their home institution lies solely with the student. Students should discuss this option with their SFS Admissions Counselor prior to starting the program, though approval will not be able to be granted in advance of the program. Once on the program, students should communicate their interest with the Center Director and their DR advisor and seek approval while on the program.

It is also critical that the student discusses this option with their faculty advisor at their home institution before, during, and after their participation in the program. Students and home advisors should bear in mind that students will not have the opportunity to pursue independent research or research on a topic unrelated to the DR. Also, data collection is usually completed as part of a team effort. Past students have discovered when returning to their home institutions that their efforts when broken down as part of a team where not sufficient to fulfill a research requirement beyond that for which they were credited through SFS.

The SFS faculty advisor is solely responsible for assessing the content and quality of student work for the DR. Likewise, the student's thesis advisor at their home institution will be responsible for assessing subsequent work. It may be appropriate for students to invite their SFS advisor to serve on their thesis committee.

SFS requires students to take the following steps in the development of scholarly works, including a senior thesis, conference presentation, or manuscript for publication:

1. Discuss proposed plans with SFS faculty or Center Director, preferably while still at SFS;
2. Formally request permission from the SFS faculty to use the data for scholarly work outside of SFS;
3. Develop an authorship plan and work plan with SFS faculty, and, in the case of a senior thesis, with their home institution advisor;
4. All authors prepare the scholarly work;
5. Acknowledgements (see below) and institutional affiliation details are determined in discussion with SFS and the student's home institution.

***SFS Acknowledgment Policy***

In all scholarly works submitted for publication and based upon SFS data, the authors, whether currently or previously students at SFS, are required to acknowledge SFS, the Center, and all SFS employees and students who were involved in the project. In addition, publications or presentations by SFS employees that are based on data obtained by students during the conduct of SFS program coursework will, at a minimum, give acknowledgement to SFS classes who contributed to the research and full acknowledgement to the students who made a significant contribution to the research. The inclusion of students as co-authors by faculty is optional and will be based on merit, contribution, and relevance.

The appropriate acknowledgement of SFS is as follows:

> "The Author gratefully acknowledge(s) the key [financial and/or field and/or logistical and/or other] support provided by The School for Field Studies (SFS) Center for [name and location of Center, e.g.: Center for Rainforest Studies, Australia]"

**NOTE**: In the case of both author address and acknowledgement, "The School for Field Studies (SFS)" is always identified and always placed before the name of the Center.

### Research Ethics

The research our faculty and students conduct complies with the research ethics rules and guidelines in the country in which they are working, and when applicable, permissions are obtained for research on human subjects, animal subjects, and for the extraction of biological samples. Additional vetting for human subjects research is made by the SFS Office of Academic Affairs to ensure standards of ethical practice and protection of subjects are met.

### Photography

Students are encouraged to bring cameras to the field. Still photography and video photography are allowed during many academic program activities, but may be restricted based on location, social cultural context, and/or the disposition of a speaker or lecturer. Students should understand that US laws do not apply while abroad. Photography in some public spaces may not be allowed by non-citizens and equipment may have to be surrendered to authorities upon request. Students should always check with local staff on standards of use of photography while in the field. Students should not bring to the field camera equipment that is intended to be operated remotely from the user. This means **DO NOT** bring: camera traps, drones, balloons, or other photographic equipment that is not intended to be held by the operator. Remote operated cameras may be seen by international authorities as surveillance equipment – and in many contexts be illegal. SFS faculty often have permissions/permits to use remote photography for research. These uses are permissible and will be performed with SFS approved equipment.

# SFS RESEARCH PHILOSOPHY

The School for Field Studies (SFS) academic programs strive to provide students with a clear understanding of the value and management of natural resources within local contexts. While SFS' interdisciplinary study abroad programs comprise far more than the research students and faculty conduct, the SFS research philosophy is an important element that defines our work and sets SFS apart.

The academic team at each SFS Center designs and implements long-term strategic research plans in collaboration with their local stakeholders. These strategic research initiatives drive the research objectives of students' Directed Research (DR) projects on those programs. Thus, through their DRs, students put a face on environmental problems, discover their complexity, and learn about conflicts between local stakeholders and competing resource needs and uses. SFS programs provide students with an applied approach to addressing environmental problems through the practice of field-based skills and concepts, including socio-cultural and ecological field methods, and the development of research and communication skills.

SFS research differs from research with other study abroad programs by virtue of our longevity and deep commitment to specific communities, locations, and environmental challenges. Our permanent field centers allow SFS faculty to work with local and national stakeholders to pursue relevant, user-inspired research questions over the long term.

SFS research and the corresponding program curricula emphasize the following:

- **A focus on environmental problem solving.** Students examine real-world environmental problems critical to local communities, enabling them to make demonstrable impacts after a session or semester of concerted effort.
- **Utilization of community-based approaches.** Faculty and students interact with local communities and agencies during the planning and execution of research projects to meet community-defined goals.
- **Interdisciplinary models.** Environmental problems need complex responses, requiring academic material that is presented in an integrated fashion from a range of disciplines and topics including biology, ecology, policy, management, ethics, anthropology, and socioeconomics.
- **Collaborative team efforts.** Students and faculty work together to jointly design and implement research and develop solutions to environmental problems. The focus is on doing good science, and understanding that good science is the foundation of sound environmental policies.
- **Experiential learning.** Students actively participate in designing and conducting research. They then take the knowledge they gain in the classroom and apply it to an actual environmental problem in the real world.

- **Emphasis on dissemination and scientific communication.** We encourage faculty and students to publish and present research in national and international forums, as our collaborative and applied research style makes our research relevant to those in and out of the local environment.

Read more about Our Research | The School for Field Studies.

# CENTER RESEARCH FOCI

## AUSTRALIA - SFS CENTER FOR RAINFOREST STUDIES

### About SFS Australia

SFS Center for Rainforest Studies is located on a 153-acre former grazing farm adjacent to a World Heritage site, near the town of Yungaburra on the Atherton Tablelands. The Center property supports stands of primary and secondary rainforest, including an endangered rainforest type, offering students a field laboratory and experimental site as part of their academic program. The primary focus of the Center's program is on tropical rainforest management and restoration and its effects on the landscape and community.

### Environmental Issues of the Region and Research Plan

Lands on the Atherton Tablelands are rich in resources—fertile soil, moderate rainfall, high biodiversity; and are relatively flat. These characteristics make them suitable for agricultural development and settlement, which has resulted in land clearing and rainforest fragmentation over the past two centuries. Preliminary data and evidence also suggest that global climate change may be impacting flora and fauna in the Wet Tropics region. The Wet Tropics region has the highest number of regional endemic vertebrates in Australia, and the Atherton Tablelands are the only fragments of the critically endangered Mabi 5b tropical rainforest, making the forests important areas to protect and restore. Recognition of the value of the Wet Tropics forests has led to the protection of substantial areas of rainforest as World Heritage areas; including lands immediately adjacent to the SFS Center for Rainforest Studies property.

The research goals of SFS Center for Rainforest Studies are to understand the dynamics of rainforest ecosystems, including the potential impacts of global climate change, and develop rainforest restoration strategies that benefit the local ecosystems and communities. Restoration benefits may include, for example, soil stabilization to minimize runoff within a catchment, including reef components, and improving ecosystem resilience. Restoration may also influence the distribution and abundance of endemic wildlife, such as the Lumholtz's tree kangaroo, which are important for both ecological and economic reasons. The primary economic drivers on the Tablelands are nature-based tourism, and farming. How ecological restoration might help bolster the tourism industry is one of our major questions; however, more information is required to determine what kinds of ecological and economic benefits might be gained from increasing rainforest cover. It is also important to determine the most successful and cost-effective techniques to enable successful regeneration and restoration.

### Research Focus

Currently the curriculum and research at SFS Center for Rainforest Studies focuses on answering the question:

***How can the future of the Wet Tropics in a changing world be ensured?***

Global climate change and fragmentation are resulting in degraded tropical rainforest ecosystems. SFS Center for Rainforest Studies research and community projects help to identify, mitigate, and manage threats affecting rainforest survival and sustainability. This information can then be used to successfully develop forest regeneration and restoration projects. A key component of retaining and restoring tropical rainforest is understanding the threats affecting its survival. Therefore, we are gathering data on the attributes and structure of Type 1b (Hypsi), Type 5b (Mabi) and Type rainforest, and determining the factors affecting successful succession as these types of forest mature.

In addition to identifying the threats to Queensland rainforest, we also aim to develop effective natural regeneration and restoration methods and techniques. More information is needed to develop ecologically and economically sound restoration practices. This information will benefit tree planting organizations by helping them determine how site maintenance influences plant growth and survival, site conditions that facilitate seedling recruitment, and faunal use regenerated sites.

Long term sustainability of tropical rainforest requires justification of its management and restoration. This research plan therefore looks at why we need to restore and retain tropical rainforest. It also identifies appropriate policy and institutional mechanisms for long term conservation planning. This information will help us to recommend regeneration and restoration methods and generate institutional support for promoting and funding rainforest conservation initiatives. Information can also be used to develop local and regional plans to sustain tropical rainforest.

# BHUTAN - SFS CENTER FOR CLIMATE AND SUSTAINABLE FUTURES

## About SFS Bhutan

The SFS Bhutan program is based in the city of Paro within the Paro Valley, about one hour from the capital city of Thimphu. The campus resides along the Paro River in a former hotel / lodge with easy access into town and just a few kilometers from Bhutan's international airport. Adjacent to the center are shops, restaurants, and plenty of natural areas to explore – both in class and through recreational walks.

## Environmental Issues of the Region and Research Plan

The Kingdom of Bhutan, referred to as the abode of the gods and home to immortals by Eastern classics and books of wisdom, is nestled in the remote and rugged mountains of the eastern Himalayan region. The culture and the traditional lifestyle of Bhutan are still richly intact and permeate all strands of modern-day secular life.

The eastern Himalayan region is characterized by extensive and numerous mountains and valleys, hosting the world's highest peaks and a diversity of vegetation types ranging from subtropical broadleaf forests through subalpine conifer and alpine shrub and meadows. The country boasts roughly 70% forest cover and 50% land area under formal conservation protection. Bhutan has been identified as one of the ten biodiversity hot spots in the world and is home to an estimated 770 species of birds and an astonishing diversity of plants and orchids. Takin, snow leopard, golden langur, blue sheep, tiger, water buffalo, and elephant are among Bhutan's diverse wildlife. Six vegetation zones are found in the country, ranging from subtropical broadleaf forests in the south, through broadleaf forests, subalpine conifer forests, alpine shrub and meadows as one gains elevation. The highest elevations comprise rock and ice. In the temperate forests, trees are related to the North American conifer and broadleaf taxa, including pines, firs, maples, and birches.

A unique aspect of Bhutan is that progress is not purely defined by economic achievements but is also based on the level of cultural and environmental preservation and development. In Bhutan, rich cultural traditions and social and political institutions often reflect Buddhist principles of The Middle Path, integrating people and nature, traditional knowledge and Western science. Sustainable management of natural resources, including soil, water, species, and minerals, is critical for this country whose economy is largely based on these resources.

In early 2008, Bhutan's government shifted from a monarchy to a constitutional democracy, opening the door for devolution of authority over natural resources to regional governments and communities. Bhutan is experiencing a massive development boom as rural to urban migration continues to grow. Sustainable management of natural resources is therefore critical for achieving the dual goals of poverty alleviation and biodiversity conservation in this country where limited transportation routes and communication lines limit access to markets. Because the local and household economies depend considerably on natural resources, a critical area for research is assessment of biodiversity and ecosystem functioning in the diverse environments of Bhutan. Those data are critical for planning conservation and rural development. Also important is the identification of threats to rural livelihoods, for example human-wildlife conflicts that occur in and around agricultural areas.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The document is generated by our faculty, local stakeholders and actors, and external research advisors. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Climate and Sustainable Futures focuses on answering the question:

***How can Bhutan secure its culture, biodiversity, and environment in the face of transition?***

Through our partnership with the Royal University of Bhutan and the Bhutan Ecological Society, SFS students and faculty will collaborate on projects advancing the University's and the Society's research agenda in several priority areas, including climate change, natural resource management, and community perceptions of the environment.

# CAMBODIA - SFS CENTER FOR ENVIRONMENTAL JUSTICE AND MEKONG ECOLOGIES

## About SFS Cambodia

The influence of the mighty Mekong River is the focus of the SFS Cambodia program. This ribbon of life provides myriad habitats to threatened species and sustains many millions of people. Students will focus on the environmental dynamics of one of the world's most productive freshwater systems and understand the interconnectedness of ecology and human actions on the sustainability of the greater Mekong region.

## Environmental Issues of the Region and Research Plan

While there are high levels of biodiversity in the lower Mekong, conservation efforts are only just beginning and environmental policies have yet to be fully developed. Cambodia, a newly emerging post-conflict nation with a growing economy, is engaged in aggressive development. Each country's path toward prosperity will have distinct yet profound effects on the natural and cultural landscapes of the region and the livelihoods of rural residents. Drivers of environmental change in the lower Mekong—whether urban expansion, tourism, or climate change—will influence the development trajectories for current and future generations. A fundamental focus of this program will be identifying these drivers and ways to mitigate the damage to natural systems while maintaining human livelihoods.

The School for Field Studies program in Cambodia gives students an understanding of the science behind local issues in water resources, environmental justice, food production, land use, and biodiversity. Through research, SFS faculty and students will play a critical role in capacity-building through education, benchmarking environmental conditions, and monitoring the rapid changes to natural systems within this vibrant region.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty and is influenced by local stakeholders and actors, and external researchers. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Environmental Justice and Mekong Ecologies focuses on answering the question:

***How is Cambodia addressing pressing environmental concerns, especially those related to the conservation of biodiversity and the changing dynamics of rural livelihoods that depend on diminishing natural resources?***

# CHILE - SFS CENTER FOR CLIMATE STUDIES

## About SFS Chile

SFS Center for Climate Studies is located in the bustling tourist hub Puerto Natales – the gateway to the famous Torres del Paine National Park. The Center's location in the well-traveled port city stands in contrast to the locations where students will travel during the program, including some of the world's most dramatic landscapes. This program's primary focus is understanding how Chile will respond to local and global challenges while securing the functionality of its natural and human systems, with an emphasis on climate change.

## Environmental Issues of the Region and Research Plan

The Chile program operates between 41 degrees and 56 degrees south latitude – very much at the 'end of the earth'. This region is extremely vulnerable to climatic and geologic perturbations. Organisms have adapted to weather extremes, but ever-changing conditions increase pressure on all forms of life. Conservation policies are now being crafted to address urgent environmental issues. The main goals of the SFS-Chile program are to understand geological and ecological landscape patterns, connect how organisms adapt to these conditions, and assess how conservation of these spaces plays out within the context of Chilean institutional and social structures.

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## Research Focus

Currently the curriculum and research at SFS Center for Climate Studies focuses on answering the question:

***How can Chile respond to local and global challenges while securing the functionality of its natural and human systems?***

The rationale for this focus is the growing global concern about the impacts of anthropogenic climate change on Earth's natural systems. Chilean Patagonia is hyper-susceptible to changes in climate, making it a destination where these changes can be observed and measured in palpable ways. SFS Center for Climate Studies research and courses help to identify and understand the prominent environmental characteristics of the Patagonian region in both Chile and Argentina, including i) the richness of life forms and shifts in the nature and timing of their interactions, ii) the climate and ecological relationships that shape landscapes, and iii) the role of nature in climate adaptation and mitigation.

In addition to identifying ecological characteristics and climate mechanisms of the region, SFS Center for Climate Studies also aims to understand how power and knowledge is differentially distributed across the sociopolitical landscape, and how power structures impact regional conservation approaches. The sociopolitical dimension of this program delves into decision making processes: which places/things are conserved and by whom, what are the costs of conservation, and what are the structural variables that differentially distribute power across various players in the conservation movement?

# COSTA RICA - SFS CENTER FOR ECOLOGICAL RESILIENCE STUDIES

## About SFS Chile

In 1991, the Center for Ecological Resilience Studies became the fifth permanent SFS Center, first stationed in Las Cruces, and eventually in 1993 located within the fertile Central Valley region in the town of Atenas. The SFS Center for Ecological Resilience Studies program is a field-based, interdisciplinary program focused on the complex issues of sustainable development, with special emphasis on finding balance among biodiversity protection, the sustainable use of natural resources, and fulfilling the economic development needs of local communities. In the semester programs we take an excursion to another country (in the past this has been either to Nicaragua or Panama) to have the opportunity to compare and contrast the ecological and socioeconomic systems between the two countries.

## Environmental Issues of the Region and Research Plan

The Central Valley region and Pacific Coast of Costa Rica are undergoing rapid and largely unplanned development in the agriculture, tourism, and real estate sectors. These areas, encompassing mountains, valleys and plains, host major watersheds of critical importance to the integrity of natural ecosystems and the health and well-being of residents. Forests have become highly fragmented by urban expansion, rural development, and aggregation of agricultural farms. The result is loss of habitat and other environmental services and the destabilization of hillsides, while competition among stakeholder groups for land and natural resources continues to increase.

Historically the dominant land use and one of the largest sources of revenue and employment was large-scale conventional agriculture. However, over the past decade, both the tourism and service industries have become increasingly important for local and national revenue and employment opportunities. The demand on land for real estate expansion and tourism infrastructure increases pressure on water resources and food production, further fragments the tropical forests, and leads to conflict over land use and land tenure. Redefining rural and urban development toward economic, social, and environmental sustainability is a priority in the coming years.

While Costa Rica and its citizens have declared almost 26% of its territory as formally protected areas, research suggests that conservation within these areas is insufficient to secure healthy and functioning ecosystems for future generations. Protected areas are highly influenced by land use practices occurring outside their borders, as well as activities occurring within them. Ecotourism operations, deforestation for agriculture, visitors and services, as well as increased development all impact the species and ecosystems within protected areas. It is apparent that current land use practices and land protection strategies may not be effectively balancing and promoting economic, socio-cultural, and ecological benefits—and are therefore not sustainable.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty, local stakeholders and actors, and external research advisors. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Ecological Resilience Studies focuses on answering the question:

***How can Costa Rica respond to local and global challenges while securing the functionality of its natural and human systems?***

Our research and teaching activities will focus on questions related to the ecological and socioeconomic impacts of tourism (I.e., food security), ecosystem fragmentation, and conflicts and synergies between protected areas and local communities. We seek to understand how conservation and tourism development policies and practices in Costa Rica are affecting natural ecosystems and local communities. Through theoretical and practical approaches to sustainable development, we will examine success and failure examples, as well as the current development trajectory. Our plan builds on the extensive research carried out by the SFS Center for Ecological Resilience Studies team.

By studying the impacts of development on natural ecosystems and local communities, we aim to provide insights into how to achieve a balance that benefits both people and the environment and to promote policies and practices that support ecological resilience and social well-being.

Research will be conducted in three thematic areas: ecological and socioeconomic impacts of tourism, effective management of protected areas and community relationships, and ecosystem connectivity and function*.*

**Tourism**: We will investigate questions such as how does people's perception of conservation and sustainable use of natural resources change because of increased visitation? What is the level of preparedness needed to receive and benefit from tourism, while mitigating negative impacts? What is the carrying capacity of visitors in parks with relation to ecological integrity and wildlife disturbance?

**Protected Areas and community relationships**: The restrictions on land use set aside for conservation have resulted in conflicting interactions between people and protected areas, which are reflected in the extraction of timber, non-timber forest products, hunting, and habitat loss. We will analyze the social and ecological impacts of these conflicts, evaluate the effectiveness of existing legislation and management practices in protecting biological resources, and propose policy solutions to balance cultural traditions involving the use of natural resources with the conservation needs of protected areas. By examining the social and ecological dimensions of conflicts between people and protected areas, we can identify ecologically and culturally sound alternatives to address them. We will also evaluate the effectiveness of current management practices in protecting biological resources and identify areas where improvements can be made. Finally, we will propose policy solutions that balance the cultural traditions of local communities with the conservation needs of protected areas, to promote the sustainable use of natural resources while preserving biodiversity.

**Ecosystems:** The fragmentation of natural habitats has serious consequences on ecosystem function, often leading to irreversible damage. As a result, the long-term viability of many species of flora and fauna is at risk. This problem is exacerbated by the rapid and disproportionate changes happening in the vicinity of protected areas due to agricultural and urban expansion. To address this issue, research will involve species inventory and monitoring of habitat use, identification of groups that are at risk, and assessment of habitat quality. This data will be used to generate specific hypotheses on the ecological impacts of land use change near protected areas. By identifying the specific impacts on the ecosystem and the species that rely on it, we can take steps to mitigate these effects and preserve the biodiversity of the region.

# CROATIA - SFS CENTER FOR THE CONSERVATION OF MARINE MEGAFAUNA

## About SFS Croatia

The SFS Center for the Conservation of Marine Megafauna is located on the northern most archipelago of the Croatian islands on the outskirts of the village of Veli Lošinj. Veli Lošinj has restaurants, artisan shops, a market, and a busy summer tourist season. The Center is situated in an old garden forest with a view of the Kvarnerić archipelago islands and Northern Velebit Nature Park.

## Environmental Issues of the Region and Research Plan

The Center for the Conservation of Marine Megafauna is a partnership between the SFS and the Blue World Institute of Marine Research and Conservation (BWI), a non-governmental organization working in the Adriatic Sea since 2000.

Research is primarily boat-based and focuses on cetaceans and sea turtles both of which are important indicator species for the health of marine environments and the impacts of climate change. The Center works with these animals from population level to individual level which includes undertaking cetacean and sea turtle rescue procedures, sea turtle rehabilitation and husbandry practices, and veterinary investigations and diagnostics.

Research focuses on cetacean and sea turtle ecology and advising on the development of conservation measures for these species and their habitats. Faculty work with government partners, community members, NGOs, and other key stakeholders. Our faculty and students seek to analyze and develop strategies to understand the status of target species, identify threats, and support marine and coastal conservation initiatives in the Adriatic Sea. As part of this, the research undertaken by BWI has informed the development of Natura 2000 areas (part of the EU nature conservation network) throughout Croatian national waters (>12% of the territorial sea). In addition, the research has informed systematic conservation planning as part of wider marine spatial planning in the Adriatic Sea. This has utilized data from boat-based surveys, aerial surveys, and satellite tracking.

## Research Focus

Currently the curriculum and research at SFS Center for the Conservation of Marine Megafauna focuses focuses primarily on the following themes:

- Cetacean and sea turtle ecology
- Biodiversity conservation
- Marine spatial planning and regional conservation
- Systematic conservation planning and decision making
- Cetaceans and sea turtles rescue procedures
- Sea turtle rehabilitation and husbandry practices.
- Veterinary investigations and diagnostics

# ITALY - SFS CENTER FOR SUSTAINABLE FOOD SYSTEMS

## About SFS Italy

The SFS Italy Center is in the ancient city of Greve, nestled in the gentle rolling hills of Chianti. Greve's main piazza contains multiple medieval-era buildings with numerous restaurants, shops, and museums to explore. Greve also hosts a weekly farmers' market that attracts both residents from nearby cities and international tourists.

Creating shared community around food is an important aspect of the program. You'll live in shared apartments in town and immerse yourself in group living through food culture. Share responsibility for cooking, budgeting, shopping, and preparing meals, and enjoy the deeply rooted Italian tradition of connecting over food.

## Environmental Issues of the Region and Research Plan

Across the world, industrial food systems provide plentiful and relatively cheap food, but this comes with environmental, social, and economic costs. Regarding environmental costs, agriculture is identified as one of the main drivers of climate change and biodiversity loss, including conversion of natural and semi-natural ecosystems into agricultural ones, simplification of traditional agricultural landscapes and extinction of local breeds and varieties. Moreover, agriculture is also responsible for depletion of aquifers, surface and groundwater pollution, soil erosion and water runoff. Among the social costs there are food security (e.g. availability and access to food) and safety issues for consumers, loss of cultural and territorial identity, inequities in tenure rights, unequal access to land for small farmers, and bad working conditions for farm laborers. Economic costs of large-scale industrial farming include the economic burdens of the environmental and social issues described above, and other costs, including inequity in the distribution of profits along the food supply chain, in access to credit, and in obtaining fair farm income support from the EU Common Agriculture Policy (CAP) by young and small farmers.

Our research at the SFS Center for Sustainable Food Systems analyzes the integration of environmental, sociocultural, and economic dimensions of food systems to achieve sustainability in different agroecological contexts. Conservation of wild ecosystems and/or agrobiodiversity is addressed in all research projects, which follow an interdisciplinary approach incorporating both natural and social sciences. Field research is carried out on vegetable and cereal cultivation, horse, sheep, goat, and cattle rearing, artisanal fisheries, vineyards, and olive groves, and in multi-use agroforestry operations. At the end of the semester program, students will present their research findings and experience to the local community, government, and key stakeholders from the program.

## Research Focus

Currently the curriculum and research at SFS Center for the Sustainable Food Systems focuses primarily on the following themes:

- Conservation of local agrobiodiversity by farmers
- Climate change impacts on food production
- Sustainability of organic agriculture and small-scale fisheries
- Livestock-wolf conflict management
- Stewardship of endangered heritage livestock breeds
- Multifunctional forest management

# KENYA - SFS CENTER FOR ENDANGERED SPECIES CONSERVATION

## About SFS Kenya

SFS Center for Endangered Species Conservation operates the Kilimanjaro Biodiversity Camp (KBC) in the Amboseli-Tsavo ecosystem in Kenya just north of Mount Kilimanjaro. Kenya, home of world-famous national parks such as Amboseli and Tsavo offer a tightly packed hub of wildlife conservation. This scenic area is the center of tourism in East Africa and has been the home of the Maasai people for centuries.

Our programs in Kenya take place in world-famous national parks, wildlife sanctuaries and protected areas, and Maasai communities. Courses and fieldwork focus on endangered species conservation, biodiversity conservation, wildlife and natural resource management, tourism impacts and the arching impacts of climate change in resource dependent rural communities. The semester program also journeys out of the savannah, across the border to Rwanda, and into the tropical broadleaf rainforests of central Africa, home of the endangered mountain gorilla.
There is a strong interconnectivity between wildlife, human communities, community livelihoods, and natural resource availability in Kenya, and competition for the region's finite natural resources is intensified by climate change, drought, poverty, ecosystem fragmentation, and human development. Our research here focuses on approaches to wildlife and natural resource conservation and promotes successful coexistence between humans and the country's incredible wildlife.

## Environmental Issues of the Region and Research Plan

Kenya's rich biodiversity is under threat from habitat fragmentation, human development, shifting human demographics, land-use changes, and natural resource availability. Our research here focuses on endangered species conservation, land use changes, and ecotourism outside of protected areas. As we examine the impacts of various threats, we explore conservation approaches to resource management that will benefit humans and wildlife alike.

Historically, the Maasai of the Amboseli region were pastoralists whose belief system promoted wildlife and environmental conservation and sustainable use of natural resources like water. In recent years, however, pressure from social elites, local leaders, and the national government to modernize and heighten socio-economic standing has caused the Maasai to shift traditional livelihoods to the detriment of the environment. More and more, Maasai people are transitioning from traditional pastoralism to a more sedentary, agricultural lifestyle and cash-based economy. This livelihood shift is accompanied by resource-intensive land use changes including the development of irrigated farmland and stationary livestock pastures, leading to over-abstraction and degradation of water resources.

All these changes are happening rapidly and taking place on semi-arid lands that are highly susceptible to erosion and other long-term degradation. Therefore, the quality and availability of wildlife habitat and resources is being impacted by these settlement and climactic patterns.

Wildlife in the ATE is entirely dependent on the same wetlands and land used by the Maasai. Expanded human settlement and climactic changes are resulting in disrupted migration patterns, greater competition for resources, and the contraction of open land for wildlife and livestock to use. This results in multiple types of conflict, including human-wildlife and livestock-wildlife conflicts. Communities living around the park incur significant economic losses and destruction of property as wildlife feed on livestock and destroy settlements.

Although separation of wildlife from livestock and crops represents a potential means of reducing conflict, fences have had mixed effectiveness. Continued contraction and degradation of wildlife habitats and dispersal areas will likely increase the frequency and severity of conflicts. Resolution of these conflicts requires a regional approach and a variety of creative alternatives for land tenure, land use planning, and wildlife conservation.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty, local stakeholders and actors, and external research advisors. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Endangered Species Conservation focuses on answering the question:

***How can changes in land use and natural resource availability in the Maasai steppe of Kenya be managed in such a way as to foster the well-being of local communities whilst safeguarding and promoting biodiversity conservation?***

**Impacts of land reform on demographics, land use, and wildlife conservation:** Due to the apparent failure of the 1960s land reform in the region and current trend toward privatization, there is an urgent need to understand the socioeconomic, political, and environmental drivers and implications of land reform for wildlife conservation and rural livelihood in a changing landscape.

**Wildlife and range conditions:** We will study wildlife densities and distributions throughout dispersal areas, including on private ranches and in public parks. Of interest are the impacts on wildlife dynamics and human-wildlife conflicts of human encroachment on the areas. We are interested in examining range condition, trends, and productivity within the group ranches between Amboseli, Chyulu Hills and Tsavo-West national parks, with specific focus on status for livestock and wildlife management. We will measure vegetation productivity and grassland community dynamics.

**Community and tourism:** Questions to be explored including the level of community participation in, and perceptions and expectations of, wildlife conservation and wildlife-related tourism, and the tourist experience in the region's already existing tourism industry.

**Assessment of natural resources, degradation, and impacts:** There is evidence that natural resource scarcity and degradation in the Amboseli-Tsavo region is causing human-human, human-wildlife, and livestock-wildlife conflicts. We will identify the main threats and underlying causes of resource degradation and conflict, and define the management strategies, ecological restoration, and social governance structures that can be put in place to reverse these patterns.

# PANAMA - SFS CENTER FOR TROPICAL ISLAND BIODIVERSITY STUDIES

## About SFS Panama

The SFS program in Panama will work with the local community, private businesses, and the government to understand marine, coastal, and terrestrial environment issues and, in turn, determine effective management strategies. SFS's research station in Bocas del Toro (BDT) is located on Isla Colón, the most populous island in the Bocas del Toro archipelago. Located a short distance from Bocas Town, the field station sits on a quiet waterfront. It is common to hear frogs, birds, and monkeys in the surrounding area.

## Environmental Issues of the Region and Research Plan

A large increase in recreational and adventure tourism to Bocas has occurred since 2000 when the government of Panama initiated a concerted marketing campaign to entice people to visit the country. A primary destination for Panama tourist is the Bocas Islands. Much of the tourism is based on reef diving, surfing, and sport fishing. Substantial capital investment has taken place and continues to flow into the region.

The new services-based economy with increased employment and entrepreneurial opportunities in the tourism services sector will continue to evolve. The present infrastructure is currently being improved; Isla Colón now sports new roads, improved parks and recreational areas, and enhanced health care facilities. The impacts of increasing tourist visitation on the coastal and marine environment will likely include diver impact on the coral reefs, commercial harvesting of reef fish, and sport fish. Onshore, the coastal forests and beaches are soon to undergo artificial restructuring, and high impact facilities and utilities will, in many cases, be stretched far beyond their present capacities. Therefore, many actions are needed to prepare for, regulate, and monitor the impacts of these escalations.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty, local stakeholders and actors, and external research advisors. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Tropical Island Biodiversity Studies focuses on answering the question:

***How can the natural resources of the BDT archipelago best be managed in order to promote conservation and sustainable use considering the complex socioeconomic environment?***

The people of Bocas del Toro presently depend on tourism, government jobs, commerce, agriculture, or the extractable marine and terrestrial resources for their livelihood. Tourism, especially since the year 2000, has been booming. Since tourism here is based in natural beauty (beaches, blue waters, coral reefs, rainforests, and abundant sea life), the protection and management of the marine and terrestrial environments is vital.

The traditional economies of many Caribbean islands, including Bocas del Toro (BDT), are based upon natural marine resources and commercial agriculture – mostly bananas. The complex coastal and marine ecosystems that surround BDT provide an expanse of food, physical protection from storms, and a destination for tourist recreational activities. Overexploitation of resources and coral reef damage are evident in many areas in the Caribbean. The coral reefs of Bocas are still attractive but show signs of stress. The health of the associated mangroves and onshore forests is good, but these ecosystems are very fragile. It is one goal of SFS Panama to study the health of the complex ecology of the archipelago and to identify practices that yield sustainable and responsible extraction of resources.

Bocas del Toro is fortunate that a large portion of the archipelago is designated as a national park and sanctuary. The Bastimentos Marine Park encompasses much of the island of Bastimentos, including the adjacent islands of Zapatilla, and the associated coastal and marine environs. While the protected status of the park affords certain securities to the fragile ecology within the park, the high number of visitors puts pressures on the living components of the park and likely threatens the long-

term health of the flora and fauna. Outside the park, visitors are beginning to experience the 'pristine' nature of the less traveled regions in the archipelago. The non-local human footprint is rapidly expanding and with it comes the problems of over-exploitation – habitat degradation, waste, and pollution. The entire management system in the region will be a focus of SFS efforts in the islands. We have partnered with local government and non-government researchers and stakeholders to help find solutions for existing—and future—pressures.

The aim of SFS Center for Tropical Island Biodiversity Studies research plan is therefore to produce information and knowledge that will help the people of Bocas assess and manage the impacts of tourism on the marine and terrestrial environments, as well as on socio-cultural conditions. The research plan has three thematic components or areas of work to complete: i) assessing and monitoring the coastal and marine environments and species; ii) management of natural resources; and iii) evaluating socioeconomic conditions for development. Specific projects are developed by Center faculty to answer key research questions posed under each thematic component. Specific projects under component one will be undertaken on the biology and ecology of reef fish and finfish, as well as the biodiversity of coral reef, mangrove, and seagrass faunal communities. Terrestrial forest and riverine systems will also be examined. The second component incorporates projects on the restoration of mangroves and reefs and research into increasing the carrying capacity of nearshore rivers and forests. The purpose of the third component is to gather data on local perceptions and expectations of tourism and awareness of resources important to the Bocas regional economy.

# PERU - SFS CENTER FOR AMAZON STUDIES

## About SFS Peru

SFS Center for Amazon Studies is in the city of Tarapoto, Peru. Tarapoto is in a unique position, perched on the edge of both the low jungles of the Amazon to the west and the foothills of the Escalera mountain range to the east. Tarapoto is a vibrant, bustling city, the gateway to the Peruvian Amazon. Spaces at the Center are connected by a web of pathways lined with flowers, medicinal herbs, and rows of stone terraces teeming with native plant species. Students have access to wooded hiking trails through protected areas, as well as quiet lofts and rocking-chair-patios offering panoramic views of the Escalera mountain range. The program will spend significant time exploring the lowland Amazon region as well as highland areas of Peru. During the semester break, students may choose to explore Machu Picchu, but advanced planning is required.

## Environmental Issues of the Region and Research Plan

The Amazonian region of Peru is rich in natural resources, culture, and social networks. However, the ecosystems, habitats, and species that comprise the biodiversity and provide ecosystem services to residents local and global are threatened by rapid and unplanned urban and peri-urban development, expansion of road system, unregulated logging and mining, and high-input agriculture. The social fabric of local communities is threatened by environmental degradation associated with these industries and inequities in rural development. Poverty in rural areas remains high and there are stark differences in access to health care, education, and water and sanitation.

This program seeks to understand both the conflicts and synergies of conservation and development. Students will gain a sense of the richness of the Amazon region—biodiversity, social and cultural diversity, and ecosystem services—while exploring strategies for sustainable livelihoods in this highly productive and diverse region of South America.

The interdisciplinary themes of socio-ecological resilience, environmental justice, and conservation will guide our inquiry. Through coursework, field exercises, and Directed Research, students will study people's dependence on the environment, examine the threats to the environment and to social networks, and explore the tools and strategies for mitigating the threats and promoting well-being among different communities. A strong component of the program will be examining the ecological patterns and processes that underpin the high diversity of the region.

The Strategic Research Plan (SRP) at each SFS field station is the overarching research directive that addresses these critical local environmental challenges and explores local solutions working within the community. The SRP is generated by our faculty, local stakeholders and actors, and external research advisors. The SRP also provides the community and students with a framework for the program curriculum and influences how SFS courses, research, and outreach activities fit into the bigger picture of environmental conservation and sustainable development.

## Research Focus

Currently the curriculum and research at SFS Center for Amazon Studies focuses on answering the question:

***What conditions are necessary for effective conservation and sustainable socioeconomic development in Peru?***

# TANZANIA - SFS CENTER FOR WILDLIFE MANAGEMENT STUDIES

## About SFS Tanzania

SFS Center for Wildlife Management Studies operates from Moyo Hill Camp in Tanzania in the Tarangire-Manyara ecosystem (TME) of northern Tanzania. Northern Tanzania, home of world-famous national parks such as Tsavo, Tarangire, Lake Manyara, Arusha, Serengeti, and the Ngorongoro conservation area, offers a tightly packed hub of wildlife conservation. This scenic area is the center of tourism in East Africa and has been the home of the Maasai and Iraqw people for centuries. The area surrounding Lake Manyara and Tarangire National Park are the focus of many comparative studies on animal behavior and vegetation composition and the rich assemblage of local people makes for stimulating opportunities for cultural and social learning.

Through classroom and field activities, students will compare and contrast the socioeconomic, policy, and environmental implications of demographic change, land reform, and wildlife populations for conservation and rural livelihood. Students will study the wildlife of the region, the pastoralist lifestyle, and principles of wildlife management at the field station. Semester students will then conduct Directed Research in the final month of the program, visiting multiple national parks, wildlife management areas, local communities, and group ranches or farms. Summer students will focus on wildlife management and research techniques.

## Environmental Issues of the Region and Research Plan

Socioeconomic, land tenure, and land use changes have adversely impacted wildlife populations in, around, and between protected areas in key remaining ecosystems in East Africa. The Maasai are currently undergoing changes from a pastoralist lifestyle to a more sedentary, cash-based economy. Additionally, Iraqw and Maasai farmers and other tribal peoples from East Africa are establishing dryland and irrigated cultivation in the group ranches or private farms. Human populations and land use change in these key wildlife dispersal areas are also increasing. All of these changes are happening rapidly, and they are taking place on semi-arid lands that are highly susceptible to erosion and other long-term degradation. The quality of wildlife habitat is in turn being impacted by these settlement patterns.

Some of the key impacts on wildlife include habitat degradation, disruption of migration patterns, loss and blockage of migratory routes and corridors, increased competition with livestock for grazing lands, persecution due to intense human-wildlife conflicts, prevalence of bush meat poaching for commercial and subsistence purposes, and decreasing access to freshwater resources. Although separation of wildlife from livestock and crops represents a potential means of reducing conflict, the use of fences has had mixed effectiveness in solving this problem. Continued contraction and degradation of wildlife habitats and dispersal areas will likely increase the frequency and severity of conflicts thereby undermining conservation. The resolution of these conflicts requires a regional and local approach as well as a variety of creative alternatives for land tenure, land use planning, and wildlife conservation.

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## Research Focus

Currently the curriculum and research at SFS Center for Wildlife Management Studies focuses on answering the question:

***How can changes in land use and resource availability in Tanzania be managed in such a way as to foster the well-being of local communities whilst safeguarding and promoting biodiversity conservation?***

The role of SFS Center for Wildlife Management Studies is to support the efforts of TANAPA and TAWIRI in Tanzania and other government agencies and community ranches by providing research to help identify current socioeconomic and land use changes, and to explain how those factors are contributing to human-wildlife competition for space and critical resources. We intend to make recommendations for reducing related conflicts and for finding means of achieving sustainable development and wildlife conservation in and around protected areas. Our research will provide information about wildlife population

dynamics and habitat suitability for managing key species, enhancing biodiversity protection, and promoting sustainable and responsible human livelihoods.

**Assessment of water resources, degradation, and impacts**
There is evidence that water scarcity and degradation in the TME region is causing human-human, human-wildlife, and livestock-wildlife conflicts. We will assess the status of key watersheds in the region, identify the main threats and underlying causes of water resource degradation and conflict, and define the management strategies, ecological restoration, and social governance structures that can be put in place to reverse the degradation of water resources.

**Impacts of land reform on demographics, land use, and wildlife conservation**
Due to the apparent failure of the 1960s land reform in the region, and current trend toward privatization, there is an urgent need to understand the socioeconomic, political, and environmental drivers and implications of land reform for wildlife conservation and rural livelihood in a changing landscape.

**Wildlife and range conditions**
We will study wildlife densities and distributions throughout dispersal areas, including on ranches and in parks. Of interest are the impacts on wildlife dynamics and human-wildlife conflicts of human encroachment on the areas. We are interested in examining range condition, trends, and productivity within the group ranches in the TME, with specific focus on status for livestock and wildlife management. We will measure vegetation productivity and grassland community dynamics.

**Community and tourism**
Questions to be explored include the level of community participation in, and perceptions and expectations of, wildlife conservation and wildlife-related tourism, and the tourist experience in the region's existing tourism industry.

# TURKS AND CAICOS ISLANDS – CENTER FOR MARINE RESOURCE STUDIES

## About SFS Turks and Caicos

SFS Center for Marine Resource Studies is working with the local community, private industry, and the government to understand marine environment issues and, in turn, determine effective management strategies. SFS Center for Marine Resource Studies is situated in Cockburn Harbour on the island of South Caicos. The Center sits on a rocky coast 40 feet above the ocean. Within a three-mile radius from the Center you will find coral reefs, mangrove islands, seagrass beds, carbonate platform flats, and deep-water diving.

## Environmental Issues of the Region and Research Plan

An imminent increase in tourism poses a substantial threat to the marine and terrestrial environments of South Caicos. Developing a sustainable tourism industry requires that all ecosystems of the island remain healthy. Ecosystem health is vital in supporting the traditional subsistence and commercial fishing industry as well as the evolving beach and marine-focused tourism industry. There are specific threats to the fishing industry, such as over-harvesting, which may negatively affect the island community's culture and traditions. Furthermore, the presence of large numbers of foreigners (e.g., tourists and hotel employees) may have a dramatic social impact on South Caicos residents.

Additionally, recent hurricanes have altered both the natural and human dynamic of the TCI archipelago, adversely affecting this fragile island system. The effects of climate change compound threats to marine ecosystems and pose a unique threat to small island nations like the TCIs.

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## Research Focus

Currently the curriculum and research at SFS-CWMS focuses on answering the question:

***How can SFS Center for Marine Resource Studies support the government and South Caicos community to best manage the marine environment and resources to balance biodiversity conservation and economic stability?***

The people of South Caicos presently depend on government jobs, commerce, or the extractable marine resources for their livelihood. Soon the island will experience a transition to a tourism-based service economy. Since tourism here is based in natural beauty (beaches, blue waters, coral reefs, and abundant sea life), the protection and management of the marine and terrestrial environments is vital.

The traditional economies of most Caribbean and Tropical Atlantic Island nations, including the Turks and Caicos Islands (TCI), are based upon natural marine resources. The complex marine ecosystems that surround most of the TCI provide an expanse of food, physical protection from storms, and a destination for tourist recreational activities such as diving and sport fishing. Although overexploitation of resources and coral reef damage are highly evident in many areas in the Caribbean, recent studies have found that local harvesting levels of marine resources around South Caicos are more or less in a sustainable or equilibrium state, with spiny lobster being the exception. The coral reefs are still in the best condition of the tropical Atlantic and Caribbean regions.

In 1992, a land and marine park system was approved by the government of the TCI to preserve critical natural areas and habitats, to sustain and manage the harvest of renewable resources, and to promote income-generating ecotourism. Unfortunately, the marine protected areas (MPA) network around the TCI is currently a system of "paper parks"—in that they are present in principle, but very little is understood about their functioning or the status of marine communities and populations within them. The MPAs still require additional enforcement, expansion, and/or relocation in order to achieve dependable resource sustainability and to protect species of biological and economic importance in the region. Local and national government departments responsible for conservation, environmental research, and resource management have fairly effective regulations in place, although monitoring and enforcement is lacking due to logistical and financial constraints.

Meanwhile, a large increase in recreational tourism to South Caicos, based on reef diving and sport fishing, is imminent. Substantial capital investment is taking place in three tourist developments. Development to date has been very gradual but is rapidly increasing, and the impact on the marine and terrestrial environments and the local community will likely be significant. Direct impacts of construction include dredging of bays to create the beautiful bays and beaches expected by tourists, which will significantly impact the marine resources. Once these businesses are operational, South Caicos environments and community will experience significant change, with both positive and negative outcomes.

A new economy with increased employment and entrepreneurial opportunities in the tourism services sector will evolve. Present infrastructure is currently being improved, with a new clinic and roads in place and an international terminal being built at the airport. The impacts of increasing tourist visitation on the marine environment will likely include diver impact on the coral reefs, commercial harvesting of reef fish, and bonefish sport fishing. Onshore, the coastal and beach strips are soon to undergo artificial restructuring, and urban facilities and utilities will, in many cases, be stretched far beyond their present capacities. Being outnumbered by tourists, the local community members may become a minority on their own island. Therefore, many actions are needed to prepare for, regulate, and monitor the impacts of these escalations.

The aim of SFS Center for Marine Resource Studies SRP is to produce information and knowledge that will help the people of South Caicos prevent, assess, and manage the impacts of tourism on the marine and terrestrial environments, as well as on socio-cultural conditions. The SRP has three thematic components or areas of work to complete: i) assessment of marine environments and species; ii) understanding drivers of changes to marine resources; and iii) environmental stewardship. Specific projects are developed by Center faculty to answer key research questions posed under each thematic component. Specific projects under the first component will be undertaken on the biology and ecology of reef fish, fin fish, and conch, as well as the biodiversity of coral reef, mangrove, and seagrass faunal communities. The second component incorporates projects on the restoration of mangroves and reefs and research into increasing the carrying capacity of nearshore waters. The purpose of the third component is to gather data on local perceptions and expectations of tourism and the awareness of resources important to the South Caicos economy.