THE SCHOOL FOR FIELD STUDIES

Directed Research
SFS 4910

Syllabus
4 credits

The School for Field Studies (SFS)
Center for Wildlife and Human Dimensions of Conservation (CWHDC)
Kimana, Kenya

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise. Course content may vary from semester to semester.

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COURSE CONTENT SUBJECT TO CHANGE

Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.

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 they may present. In other words, this is a field program, and the field can change.

Course Overview

A key aspiration of SFS is to generate knowledge on the interaction between communities and the environment they live in and use it to promote sustainable use of natural resources for enhanced livelihoods and socio-economic wellbeing. To this end, students attending SFS abroad programs are involved in Faculty guided Directed Research (DR) in Spring and Fall semesters. With time, they assist the Faculty and each Center to generate a substantial pool of knowledge in the form of data and information collected in different semesters.

This course therefore aims at providing students with an opportunity to apply biological, social, and ecological scientific processes and methods to a research project that addresses local issues related to wildlife, natural resources conservation, environment, and socio-economic welfare of local communities in the Amboseli Ecosystem. It prepares students to distinguish hidden assumptions in social and scientific approaches. Faculty and students will also investigate the ways that various methods and theories differentiate (or do not) fact from interpretation, cause from correlation, and advocacy from objectivity. Through the Directed Research projects, students will contribute to a growing body of social and scientific research that informs local conservation and resources management decisions and further the Center's research agenda.

Each student will join a faculty-led team that will conduct field-based research, data analysis, and communication of results in one or across several of the following disciplines: ecology, natural resource management, and human dimensions of conservation. To this end, the Directed Research course is designed to build on the various aspects students have learned in the courses offered in the semester as well as Directed Research lectures which are specially designed to assist students in understanding the social and scientific process, testing hypotheses, and presenting results in both written and spoken formats. The entire process will culminate with a short one-on-one presentation of the DR work to the faculty, and presentation to various stakeholders at the Center.

Learning Objectives

The core skills students will learn in this course are field techniques, analytical methods, skills, and critical thinking, as well as teamwork, and time management. The specific objectives of the course are:

1. Understand the process of **designing** a field research project
2. **Conduct** field sampling
3. Manage, interpret, and analyze **data** sets
4. **Communicate** research results to diverse audiences
5. Manage teamwork within the context of **collaborative** research

To achieve these objectives, the specific tools used in this course include experimental design, field data collection techniques, basic descriptive statistics, parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic and tabular presentation of results and effective delivery of oral presentations will also be emphasized.

Assessment

Students will present their DR projects in the standard scientific formats of a peer-review style report and a conference style presentation. They will also be graded on data management and their degree of positive contribution to the DR process. Comprehensive details of the DR component's grade, and grading rubrics will be provided separately by faculty at the beginning of the DR work. However, the general description and expectations of the DR course grade is outlined below.

Assessment Item	Value (%)
Project Proposal	10
Final DR Report	55
Presentations	20
Data Management	5
Directed Research Skills/Participation	10
TOTAL	**100**

Project Proposal (10%)

The project proposal has two elements: a ***Literature Review*** and a ***Project Summary***.

1. **Literature Review**
   The main objective of the Literature Review is for students to familiarize themselves with previous research and publications in their chosen Directed Research project. This should draw upon a literature base (where possible) to initially review the status of research in the field and then to build a setting and justification for research that still remains to be done.
   The Literature Review should include:
   - A full literature review: A critical evaluation of knowledge in the subject area
   - An exploration of the DR project status within the literature: Highlight knowledge gaps and how the proposed project fits within the current literature
2. **Project Summary**
   The main objective of the Project Summary is for students to develop a detailed outline for their Directed Research. The Project Summary should include:
   - Aims/Hypothesis(es): A list of questions that the student would like to answer as a result of the research project they will design
   - Materials & Methods: A detailed description of the methods to be used in their study and why these methods will be used over other potential methods. This should include sampling design, as well as the physical data collection methods to be employed
   - Predicted Findings & Importance: A list of predicted findings and implications for each

Final DR Report (55%)

The final report will be written in the style of a peer-review submission to a journal in the appropriate field. You will have ample guidance from your DR supervisor throughout the DR period, and especially during DR data collection, analysis and report write-up. The analytical tools for research workshops in the DR course (and complementary classes in other courses) are designed to prepare you for producing the results section and improve the quality of your work.

Presentations (20%)

Each DR group will be responsible for preparing and presenting the findings of their research to different stakeholders who will include the local community. This is a critical outcome of the Center's research and is part of SFS social responsibility with the host community and country. The findings of the Center's research will be presented to relevant parties or stakeholders in a manner that can be easily understood and applied to address conservation and livelihood issues that are of concern in the host community. Each DR group will receive a grade for their oral presentation after assessment by two Faculty members who are not involved in a group's research work. The faculty will guide students on how to prepare and do the presentations.

Data Management (5%)

It is important to record and store research data in a manner that is useful. Students will be required to provide (as applicable) Excel sheets with their research data in a format that is intelligible to someone else. You may need to provide both raw and manipulated data you used to create figures, tables and to run statistical tests. You need to annotate your spreadsheets (use text boxes if appropriate) so that an outsider can understand the data. You may also be required to provide any field notes.

Directed Research Skills/Participation (10%)

Students' Directed Research skills will be graded throughout the DR course by their supervisor. Your final grade will depend upon your attendance to all DR activities, active involvement and competencies in field data collection, data interpretation and group participation/support.

Grading Scheme

Grade corrections in any of the above items should be requested in writing at least 24 hours after assignments are returned. No corrections will be considered afterwards.

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%		

General Reminders

Intellectual Property – There are many implications about intellectual property and the use of data and research frameworks beyond your semester experience. Many DR projects form part of ongoing and developing research lines at SFS Centers, the work of which is the intellectual property of SFS faculty. However, faculty are always interested in continuing collaborations, and there is often the possibility for student *co-authorship* on future academic publications. We will discuss the ethics of data gathering and academic publications during the semester, but you can also review in advance SFS's data policy.

Plagiarism – Using the ideas and material of others without giving due credit, is cheating and will not be tolerated. A grade of zero will be assigned if anyone is caught cheating or aiding another person to cheat actively or passively (e.g., allowing someone to look at your exam). All assignments unless specifically stated should be individual pieces of work.

Deadlines – Deadlines for written and oral assignments are instated for several reasons: they are a part of working life to which students need to become accustomed and promote equity among students. Deadlines allow faculty ample time to review and return assignments before others are due. Late assignments will incur a 10% penalty for each day that they are late. No assignment will be accepted after three days. Assignments will be handed back to students after a one-week grading period.

Participation – Since we offer a program that is likely more intensive than you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the program is mandatory because your actions can significantly affect the experience you and your classmates have while at SFS. Therefore, it is important that you are prompt for all DR activities, bring the necessary equipment for field research, and simply get involved.

Course Content

L: Classroom lecture, **L/Demo**: Classroom lecture and demonstration

DR Coursework Component: The coursework component of the DR is designed to prepare the students to conduct scientific research. The lectures are delivered throughout the semester, in conjunction with the topical courses, so that students are well prepared to work with their faculty mentor on meaningful research. Some of the course activities below will be delivered to the whole class, or as part of your specific DR group once you have selected a given project.			
No	***Title and outline***	***Type***	***Hours***
DR 01	**DR Course Introduction** In this class, each Faculty will do a 30-minute overview of their DR to enable students do an informed decision in selecting their DR choice	L	1.5
DR 02	**Introduction to the Scientific Method** Familiarize students with the process of science and associated methods	L	1.5
DR 03	**Qualitative & Quantitative Research Methods** Lecture will introduce students to qualitative and quantitative research	L	2.0
DR 04	**Introduction to biometry and statistical tools** A comprehensive introduction to various statistical terminologies, scales of data and how to properly distinguish data types for analysis. We will discuss statistical inference, hypothesis testing, and common analytical tools	L	3.0
DR 05	**Introduction to Scientific Writing & Reading** Explore the difference between primary and secondary sources; expectations and standards of practice; describe expectations for the DR paper	L	1.5
DR 06	**Research Ethics** The lecture will introduce students to the ethical considerations involved in research (e.g. human subject's protection, data integrity and management)	L	2.0
DR 07	**Risk & Time Management in DR** Will prepare students on how to manage risks in the field during data collection, and how to effectively manage the time allocated for the DR course	L	1.5
DR 08	**Introduction to SPSS software** Demonstration on using SPPS software in data syntheses and analyses	Demo	1.5
DR 09	**Statistical analysis computer lab** Introduce students to parametric, non – parametric and enumerative statistical analysis and interpretation of analysis output	Demo	3.0
DR 10	**Effective Scientific Communication Skills** Students will understand the importance of scientific communication skills and start to think about how to address different audiences	L	2.0
	Total	**19.5 Hours**	
DR Research Component This portion of the DR course is made up of research time, which includes data collection, synthesis, and dissemination. Given the intense nature of the Directed Research project, students receive over 140 contact hours during this period.		**Days Allocated**	
Data Collection Students work within their DR group to go into the field to collect data		9 days	
Data Synthesis Students work closely with their faculty mentors to analyze their collected data and write up their findings in a structured scientific paper		4 days	

Research Dissemination Students prepare, practice, and deliver presentations for SFS and community audiences.	3 days
Total	**16 days**