THE SCHOOL FOR FIELD STUDIES

Directed Research
SFS 4910

Syllabus
4 credits

The School for Field Studies (SFS)
Center for Wildlife Management Studies (CWMS)
Rhotia, Tanzania

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.

www.fieldstudies.org

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.

Center Research Direction

The SFS-CWMS (Tanzania) program is geared towards preparing students to answer the following case study question:

> *How can wildlife conservation and socio-economic conditions be enhanced in a changing socio- ecological system within the Tarangire-Manyara ecosystem?*

Course Overview

This course aims to provide students with the opportunity to apply ecological, biological, and/or social-scientific methods to a field research project that addresses a local issue related to the environment and conservation. This course prepares students to distinguish hidden assumptions in scientific approaches. We 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 scientific research that informs local conservation and resource management decisions and furthers the Center's research agenda.

Each student will join a faculty-led team that will carry out field research, data analysis, and communication of results in one or across several of the following disciplines: ecology, natural resource management, and social sciences. The Directed Research course is designed to build on the information students have learned in the topical courses as well as Directed Research lectures and workshops specifically designed to assist students in understanding the scientific process, testing hypotheses, and presenting results in both written and spoken formats.

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

Assessment

Students will present their final DR projects in the standard scientific formats of a peer-review-style report and a conference-style PowerPoint presentation. Grading will be on data management and positive contribution to the DR project for each student. Comprehensive details of all assignments related to DR projects will be provided separately, see below for the general descriptions.

Assessment Item	Value (%)
Project Proposal	10
Final Report	45
Presentation	20
Data Management	5
Directed Research Skills/Participation	20
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 Report (45%)

The final report is written in the style of a peer-review submission to a journal in the appropriate field. You will have ample opportunity for guidance from your DR supervisors throughout the DR period and especially during DR data analysis week. The analytical tools for research workshops in the DR course (and complementary classes in other courses) are designed to prepare students for producing the Results section and improve the quality of the work.

Presentation (20%)

Students will present the DR work in a conference-style presentation of 5-10 min length with additional time for questions. Unless the scope of the DR project is very small, students should not attempt to squeeze everything from the final report into this presentation. Making sure that the presentation is within the time limit is a very important skill and so thorough rehearsal is important.

Data Management (5%)

It is important to record and store research data in a manner that is useful and safe. Students will need to provide (as applicable) Excel sheets with research data in a format that is intelligible to someone else. Both raw and manipulated data used to create figures, and tables and to run statistical tests will need to be provided. Students will need to annotate their spreadsheets (use text boxes if appropriate) so that an outsider can understand what the data are.

Directed Research Skills/Participation (10%)

Your Directed Research Skills will be graded throughout the DR course by your supervisor. Your final grade will depend upon your attendance to all DR activities, active involvement and competencies in field data collection, data entry 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: Lecture, **D:** Discussion, **W:** Workshop

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*
DR01	**DR Course Introduction**	L	1.0
DR02	**Introduction to Science & the Scientific Method** Familiarize students with the process of science and structured research	L	1.0

DR03	**Introduction to Scientific Writing & Reading** Explore the difference between primary and secondary sources; expectations and standards of practice; describe expectations for the paper	L	1.5
DR04	**Qualitative & Quantitative Research** Lead discussions on these topics, introduce collection methods for each, gather background on student's current familiarity with various methods	W	2.0
DR05	**Research Ethics** Introduce students to the ethical considerations involved in research (e.g. human subjects protection, data integrity, and management).	L	1.0
DR06	**Risk & Time Management in DR**	L	1.0
DR07	**Effective Scientific Communication Skills** Students will understand the importance of practicing scientific communication skills and start to think about how to address different audiences.	L	3.0
DR08	**Introduction to Statistical Analyses (Theory)** An overview of data types, hypothesis testing, and basic data analysis techniques	L	2.0
DR09	**Project Development & Proposal Writing** Faculty will lay out expectations of student proposals and students and faculty will form discussion groups to further DR proposals	D	1.5
	Total	**14 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**
Proposal Writing Students work within their DR group to develop their proposals in close supervision of their mentors.	4 days
Data Collection Students work within their DR group to go into the field to collect data	10 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	12 days
Research Dissemination Students prepare, practice, and deliver presentations for SFS and community audiences.	3 days
Total	**29 days**