THE SCHOOL FOR FIELD STUDIES

Directed Research
SFS 4910

Syllabus

The School for Field Studies
Center for Wildlife Management Studies
Karatu,Tanzania

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 may be present. In other words, the elephants are not always where we want them to be, so be flexible!

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.

© 2019 The School for Field Studies

Center Research Direction

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

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

Course Overview

The aim of this course is 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 further 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, communication skills and critical thinking, as well as team work and time management. The specific objectives of the course are the following:

1. Understand the process of designing a field research project
2. Conduct field data collection
3. Manage, interpret and analyze data sets
4. Communicate research results to diverse audiences

Assessment

You will present your DR projects in the standard scientific formats of a peer-review style report and a conference style presentation. You will also be graded on your data management and your positive contribution to the class. Comprehensive details of all assignments will be provided separately, see below for the general descriptions and expectations.

Assessment Item	Value (%)
Project proposal	10
Final report	55
Presentation	20
Data management	5
Directed Research Skills	10
TOTAL	100

Project Proposal

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 the area of their chosen Directed Research project. The literature review should draw upon a literature base (where possible) to firstly review the current 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 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 (framework) for their Directed Research. The DR *Project Summary* must include the following items:

- 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

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 you for producing the Results section and improve the quality of your work.

Presentation

You will present a subset of your DR work in a conference style presentation of 12 min length with additional time for questions. Unless the scope of your DR project is very small, you should not attempt to squeeze in everything from your final report into this presentation. Making sure that you are within the time limit is a very important skill and so thorough rehearsal is important.

Data Management

It is important to record and store research data in a manner that is useful. You will need to provide (as applicable) Excel sheets with your 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 what the data are. You may be required to provide field notes on your findings for review.

Directed Research Skills

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 interpretation and group participation/support.

Grading Scheme

A	95.00 - 100%	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	59.99-00.00%
		B-	80.00 - 82.99%	C-	70.00 - 72.99%		

General Reminders

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.

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 land and water based activities, bring the necessary equipment for field exercises and directed research, and simply get involved.

Course Content

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.

L: Lecture, FL: Field Lecture, FEX: Field Exercise, T: Test, D: Discussion or Breakout Session.

No.	*Lecture Title and Description*	Type	Time (hrs)
DR01	**DR Course Introduction** *Should happen the first few days being at the center does not need to include Faculty project introductions*	L	1
DR02	**Introduction to Science & the Scientific Method** Familiarize students with the process of science	L/FL	1
DR03	**Introduction to Scientific Writing & Reading** Explore the difference between primary and secondary sources; expectations and standards of practice; describe expectations for paper	L	1.5
DR04	**Qualitative & Quantitative research** *Lead discussions on these topics (not exhaustive, but overviews), introduce collection methods for each, gather a background on student's current exposure to these topics*	L/FL	2
DR05	**Research Ethics** Introduce students to the ethical considerations involved in research (e.g. human subjects protection, data integrity and management).	L	1
DR06	**Risk & Time Management in DR**	L	1
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
DR08	**Statistics** A brief introduction to basic statistical theory and use of statistical software (use of example data)	L	2
DR09	**Project Development & Proposal** Faculty will lay out expectations of student proposals and students and faculty will form discussion groups to further DR proposals	L/D	1.5
	Total		**14**

DR Research Component:

Research Component Activity	Days Allocated
Data Collection Students work within their DR group to go into the field to collect data	10
Data Synthesis Students work closely with their faculty mentors to analyze their collected data and write up their findings in a structured scientific paper	10
Research Dissemination Students prepare, practice, and then deliver presentations for both internal SFS and community audiences.	3
Total	**23 days**