



S F S THE SCHOOL
FOR FIELD STUDIES

Directed Research

SFS 4910

Syllabus
4 credits

The School for Field Studies (SFS)
Center for Marine Resource Studies (CMRS)
South Caicos, Turks and Caicos Islands

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.

Center Research Direction

The global research question that we want to address during this research course is:

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?

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. This course teaches students data collection, data management, data analysis, and scientific writing. Students will communicate their findings through a written paper, oral presentation, and video. The directed research topics are derived from the SFS Center's Five-Year Research Plan as defined by the Center staff and local stakeholders. Through the Directed Research project, students will contribute to a growing body of scientific research that informs local conservation and resource management decisions.

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, biology, natural resource management, economics, and the social sciences.

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

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.

Assessment Item	Value (%)
Literature Review	15
Final Report	35
Research Presentation	20
Research Video	15
Directed Research Skills – Data Management and Participation	15
TOTAL	100

Literature Review (15%)

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 remains to be done.

Final Report (35%)

The main objectives of the DR *Final Report* are to familiarize students with formal processes of writing scientific reports, which may include structuring and presenting your research findings in a standardized format consistent with the discipline. You will be assessed on your ability to (1) succinctly present your research hypothesis/question and the materials and methods used to collect data, (2) appropriateness of the quantitative and/or qualitative analytic techniques used, (3) appropriate presentation of results, and (4) adequate interpretation of results in light of the social and ecological contexts in which we work.

Research Presentation (20%)

As a Directed Research group prepare a 15-minute presentation on your research topic. This presentation should contain a title slide, a concise and cohesive introduction to your research topic (2-4 slides), 1-2 slides about your research aims, a brief explanation of your research methods (2-4 slides), your major and most interesting results (3-5 slides), and a discussion of these results (and any relevant recommendations, if applicable) (2-3 slides). Finish your presentation with an acknowledgment slide, where you thank everyone that helped with your project that was not part of your DR group, a slide for questions and a slide for references. A good rule of thumb is to spend about a minute talking per slide. Do not overcrowd the result slides, focus on a single graph and result per slide and explain this well, giving the audience time to understand your results. Also do not overload slides with text, less text is better, not everything you say has to be written down. Too much text focuses the audience on reading your slides and not listening to you. Make sure to cite images directly on the slide (e.g., name of student or staff who took the photo). Lastly, make sure to practice!

Research Video (15%)

Although peer-reviewed journal publications are the main route through which scientists disseminate their research findings, an increasing amount of effort is being put into making research results more accessible to a wider audience. In today's world, a wide variety of media options are available to facilitate such efforts, and it is not uncommon for funding-providers to require media products that can be shared with stakeholders and general audiences. Each DR group will produce a concise, 2-5-minute video that summarizes their research for a diverse, non-scientific audience. This should include some background information (why the research was undertaken), an overview of the methods employed, the main findings and conclusions. Scientific jargon, details of statistical analyses, and complex graphs should be avoided. The video should be self-contained (i.e., the narration must be included), and it should consist primarily of footage from your fieldwork supplemented with additional supporting footage and images. The goal is to hold the audience's attention while getting your message across in an easily digested and understandable manner – be creative! Your videos will be used for outreach and as promotional materials. You will be graded as a group on (1) video quality, (2) clarity of content, (3) creativity, (4) appropriateness for a general audience.

Directed Research Skills - Data Management and Participation (15%)

The data you collect during your projects are useful to SFS, to our clients and partners, and to future students. Therefore, it is important to store data in a manner that can be readily understood by others. Good data management is also an important skill to develop.

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, **FEX**: Field Exercise, **DEX**: Desk Exercise, **P**: Presentations

No	Title and outline	Type	Hours
DR 01	Scientific Data Organization and Excel practical Underwater slates; Excel sheets; Basic excel skills that are useful for future assignments	L	1.0
DR 02	Basic Statistics A brief introduction to basic statistical theory and use of statistical software. It will assist in understanding the limitations of your data, and selecting the appropriate statistical tests	L	1.0
DR 03	Intro to R	W	1.0

	Basic statistical data analysis skills using the program R		
DR 04	DR projects descriptions Faculty will present the different DR projects the students will be working on this semester and will lay out expectations for each project.	L	1.0
DR 05	Group Discussions Groups for each project will discuss specifics of the research activities	D	1.0
DR 06	Scientific writing and literature research Background on how to write a scientific literature review and how to conduct a scientific literature search	L	1.0
DR 07	Zotero Workshop Students will learn how to use reference manager software which is used to manage and share research papers and generate bibliographies for scholarly articles.	DEX	1.0
DR 08	Literature Review DEX Students will be informed where and how to obtain scientific research articles and other literature for their literature review. Faculty will assist with what types of information may be useful and how to obtain information for inclusion in the paper.	DEX	5.0
DR 09	Data Collection Practice Run and debrief Students will partake in a practice run for data collection. It will prepare them for consistent data collection.	FEX	1.0
DR 10	DR Field Time	FEX	25.0
DR 11	Graduate School and Career Q&A (Optional) Students can ask questions to faculty about graduate school and careers (application processes, CV/resume formatting, appropriate timelines, etc.)	D	1.0
DR 12	Data analysis and write up Learning data analysis methods and guidance for write up	DEX	10.0
DR 13	Presentation preparation	P	4.0
DR 14	In-house Presentations	P	2.0
DR 15	Community Presentations and Video Edits	P	2.0
Total			57 Hours