



S F S THE SCHOOL
FOR FIELD STUDIES

Directed Research

SFS 4910

Syllabus

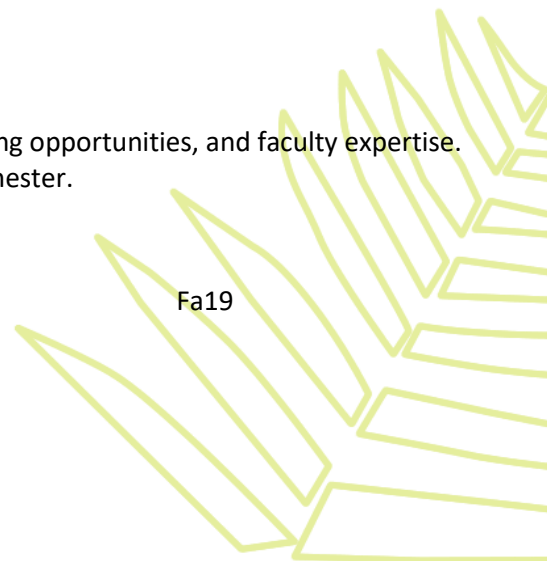
The School for Field Studies (SFS)
Tropical Island Biodiversity Studies (TIBS)
Isla Colón, Bocas del Toro
Republic of Panamá

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

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. We will investigate the ways that various methods and theories distinguish (or do not) fact from interpretation, cause from correlation, and advocacy from objectivity. The Directed Research topics are driven by the needs and interests of Bocas del Toro. Through the directed research projects, 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, natural resource management and social sciences. All Directed Research projects are collaborative. The course is designed to build on the information students have learned in the Tropical Coastal Ecology, Principles of Resource Management, and Environmental and Socio-economic Values courses as well as Culture and Language, 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.

The research projects and topics being conducted this semester will be provided mid-semester.

TIBS Research Direction

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

“How can the natural resources of the BDT archipelago best be managed in order to promote conservation and sustainable use considering the socio economic environment?”

Collaborative Course Assessments

Assessment Item	Value	Group (G) or Individual (I)
Literature Review	10%	I
Project Proposal (<i>including written collaborative literature review</i>)	15%	G
Peer Review	20%	I
Final Paper	25%	G
Presentation and Panel Defense	15%	I
Group Poster	10%	G
Directed Research Skills- Data Collection and Management	5%	I
TOTAL	100%	

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.

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 large 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.

LITERATURE REVIEW: A critical evaluation of knowledge in subject area

JUSTIFY DR PROJECT: Highlight knowledge gaps and give justification of DR project

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: 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: A list of 'predicted findings' and implications for each

Peer Review

Each group member will be evaluated by each of their peers and receive the average grade of this evaluation. The grade rubric will assess: effort, professionalism, ability to work in a team atmosphere, academic contribution to the project, and quality of the contribution. Each team member will review themselves and in addition provide assessment on their peers. Please note that these reviews are anonymous, and we expect honest and thorough evaluation of work. If the same grade is assigned to each of your peers, your Directed Research professor will ask you to re-evaluate the grades assigned. To receive your final grade, your peer review form must be completely filled and submitted on time to your DR professor.

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.

DR Group Poster

Students will be grouped based on their research project topics and will create and present a scientific poster to the community.

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 an Excel sheet (or sheets) with your research data in a format that is intelligible to someone else. You 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.

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 entry and group participation/support.

Additional DR Requirements:

Directed Research Community Presentation Video (not graded)

In addition to your individual and group work, you will present your work to the larger community on Saturday, December 7, 2019. Local stakeholders, government officials, friends of SFS and concerned citizens attend this event. You will create a video presentation, preferably in Spanish with English subtitles or in English with Spanish subtitles using footage that you have recorded during directed research to present to the community. The videos should outline the goal of the research project, its importance to Bocas and to greater society, methods, results, conclusions and future plans.

Formatting of Written Work

Format written assignments using the following guidelines: 1" page margins, 1.5 spaced lines, Times New Roman, 12-pt. font.

Submission of Assessments

To submit work, save the file on the server, in the folder Students>DR>Assessment. Please note that files are time and date stamped, and this information will be used to evaluate if the submission was before the deadline. There will be no discussion as to if these are accurate. All work is expected to be submitted on time, no exceptions.

Grading Scheme

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%		

Grading Rubrics for Assessments

For assessment, a rubric outlining grading components and the weighting for each will be provided at the time the assignment is set.

Important General Reminders

Plagiarism - Using the ideas and material of others without giving due credit, is utterly against the principles of scientific research and scholarship. In the context of assessment, it is considered cheating and will not be tolerated. A grade of zero will be assigned for any assignment, or part thereof, that is adjudged to have been plagiarized. Any student adjudged to have allowed their work to be plagiarized by another student will have punitive measures taken against them. 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. Deadlines as codified in this syllabus must be strictly adhered to unless there is a specific written amendment.

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, Panamá. 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.

Recording observations - It is highly recommended that students carry and use small notebooks to jot down observations, reflections, and sketches while on FEXs and during personal excursions. Recording media (still images and video) can also be valuable for illustrating reports and presentations. Generally speaking though, you should ask permission of subjects before photographing them (ask the permission of parents before photographing children) and do not post pictures of research informants or subjects on social media sites (we will cover this in more detail during the research ethics class).

Positive contributions- DR Skills and Data Management

You will earn these points by going above and beyond simply meeting the course requirements. For example, you will be expected to turn in raw data in organized tables, participate in discussions, assist your peers, and demonstrate an overall positive attitude.

Course Content

Types of Teaching Sessions-L: Lecture, FEX: Field Exercise, W: Workshop or structured discussion, P: Student Presentation.

<i>Lecture Title and Description</i>	Type	Time (hrs)
DR01 Course introduction Review of the DR syllabus and discussion of the course objectives	L	0.5
DR02 Analytical Tools for Research This lecture gives an overview of some of the most common statistical methods and tools to analyze scientific data	L	2
DR03 Effective Communication Skills I: Figures and Tables Why do we use figures and tables? How should they look? What should be included?	L	1
DR04 Project Descriptions Faculty introduce DR projects	L	1
DR05 DR Meetings Students meet in their respective DR groups with faculty advisors	W	1
DR06 Field Site Scout	FEX	3
DR07 Project Proposal- Group Meeting Students meet with DR professors to discuss proposal writing <i>Draft Proposals due Wednesday, November 13, 2019 12pm</i> <i>Final Proposals due Saturday, November 16, 2019 at 6pm</i>	L	1
DR08 Effective Communication Skills II: Presenting data, scientific communication	L	1
DR09 Ethics in Research and Human Subjects Research Forms Introduce students to the ethical considerations involved in science.	L	1

Lecture Title and Description	Type	Time (hrs)
DR10 DR Prep Day I- Method Testing Students work with DR faculty members in the classroom, laboratory and in the field to determine logistics, plan research collection days and practice field methods	FEX	6
DR11 DR PREP DAY II/DR FIELDWORK BEGINS Students work with DR faculty members in the classroom, laboratory and in the field to determine logistics, plan research collection days and practice field methods. This day may also be used as a full collection day if methods and logistics are confirmed.	L	8
DR12 Field Work (10 days in the field)	FEX	10 days field collection
DR13 How to write and present a scientific poster	L	1
DR14 Data Analysis and write up of final paper (3-4 days) <i>Papers are due Tuesday, December 3, 2019 at 9 am</i> <i>Re-writes due Thursday, December 6, 2019 at 6 pm</i>	W	3-4 days
DR15 Preparation time for oral presentation (1-2 days)	W	1-2 days
DR 16 Oral Presentations I- Class Presentations <i>Thursday, December 5, 2019 (afternoon)</i> DR 16 Oral Presentations II- Community Video Presentations <i>Saturday, December 7, 2019</i> Community Posters due by 10am, <i>Friday, December 6, 2019</i>	P	
Total		15 days