



S F S THE SCHOOL
FOR FIELD STUDIES

Directed Research

SFS 4910

Syllabus
4 credits

The School for Field Studies (SFS)
Center for Rainforest Studies (CRS)
Queensland, Australia

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 Centre for Rainforest Studies' research plan addresses the question: *How can the future of the Wet Tropics in a changing world be ensured?* Staff and students of SFS-CRS investigate this topic by engaging in research under three core components:

1. Understanding ecological and social systems;
2. Conflict, vulnerability and change;
3. Effective response to change.

Through our research, we aim to assist a range of stakeholders and research partners. These include local landholders; non-government conservation organisations conducting rainforest restoration or having a special interest in flora and fauna; several levels of government, particularly local and state government; regional research organisations, including universities and the Commonwealth Scientific and Industrial Research Organisation.

We aim to improve stability, sustainability, environmental awareness, and concern for natural resources in the Wet Tropics, in particular on the Atherton Tablelands. Our goal is to strengthen research, technical and practical collaboration between SFS-CRS and other research organizations, governmental agencies and non-governmental organizations to carry out this agenda.

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](#).

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 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.

The specific research projects conducted each semester vary, pending discussions with collaborators, current work being carried out at the Center, and student interests.

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/proposal. Comprehensive details of all assignments will be provided separately, see below for the general descriptions and expectations.

Assessment Item	Value (%)
Final Report	65
Oral Presentation	15
Poster	5
Data Management	10
Participation	5
TOTAL	100

Final Report (65%)

The final report is written in the style of a submission to a peer-reviewed journal in the appropriate field. You will have ample opportunity for guidance from your DR supervisor(s) throughout the DR period and especially during data collection, data analysis and draft writing. 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.

Oral Presentation (15%)

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.

Poster (5%)

You will design and produce a poster from your research to display at our Community Presentation function. The format for the poster will be provided by faculty.

Data Management (10%)

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.

Participation (5%)

Work on a research project presents a very different set of challenges, compared against a regular course. The adage “a chain is only as strong as its weakest link” can be especially visible during research, and the success of each professor’s group will require active participation and involvement by all group members. This may include helping to develop and practice sampling logistics and procedures, optimize field sampling protocols to maximize the sampling potential in the field, distributing sample and data analyses to diminish workflow bottlenecks, focusing on post-analysis activities (e.g., write-up, presentations), and more.

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

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, WS: Workshop, D: Discussion

DR Coursework Component: The coursework component of the DR is designed to prepare students to conduct scientific research. Lectures are delivered throughout the semester, in conjunction with topical courses, so that students are well prepared to work with their faculty mentor on meaningful research.			
No	Title and outline	Type	Hours
DR01	DR Course Introduction This introduction will reveal the available DR projects	L	1.5
DR02	The scientific method & designing ecological studies How to plan and design an ecological study and intro to main field techniques	L; WS	1.5
DR03	Introduction to Scientific Writing & Reading Explore the difference between primary and secondary sources; expectations and standards of scientific writing; describe expectations for DR papers.	L	1.5
DR04	Research Ethics Introduce students to the ethical considerations involved in research (e.g., human subject's protection, data integrity and management).	L	2.0
DR05	Risk & Time Management in Field Research	L	1.0
DR06	Effective Scientific Communication Skills Students will understand the importance of practicing scientific communication skills (oral and poster presentations) and start to think about how to address different audiences.	L	2.0
DR07	Make sense of your data It is time to understand how to analyse your data. You will learn about some necessary steps to make sense of your data, from the data exploration to more refined analysis to test your hypotheses like GLM, LM and NMDS.	L; WS	4.5
DR08	Making effective graphics Graphics can make or break a paper. Learn how to make effective images for your papers/posters/presentations	L; WS	4.5
DR09	Project Development & Proposal Faculty and students will meet to refine their specific DR topics.	D	2.0
DR10	DR Intro Presentations		5.0
DR11	DR Final Presentations		5.0
Total			30.5 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			11 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			8 days
Research Dissemination Students prepare, practice, and deliver presentations for SFS and community audiences.			5 days
Total			24 days