



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.

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.

Intellectual Property: Directed Research (DR) projects contribute to ongoing faculty-led research at SFS Centers and are not independent student research projects. Data, research frameworks, and project outputs are part of the intellectual property of SFS faculty and their research programs. Any future use of project data or continuation of the research must occur in collaboration with SFS faculty. Faculty often welcome continued student involvement, and opportunities for co-authorship on future publications may arise. We will discuss research ethics, data use, and publication practices during the semester; students should also review SFS's data policy in the SFS Academic Handbook.

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	50
Final Presentation	10
Outreach Video	25
Literature Review/Proposal	5
Data Management	5
Participation	5
TOTAL	100

Final Report (50%)

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.

Final Presentation (10%)

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.

Outreach Video (25%)

You will film an outreach video for your research to present at our Community Presentation function. The format for the video will be provided by faculty.

Literature Review/Proposal (5%)

Students will prepare a research proposal consisting of an introduction, literature review, and methods section. The literature review will critically synthesize relevant scientific literature to provide context for the study, identify knowledge gaps, and justify the proposed research question. The methods section

will outline the proposed study design, data collection procedures, and analytical approaches that will be used to address the research objectives or hypotheses.

Data Management (5%)

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

Honor Code/Plagiarism – SFS places high expectations on their students and we hold students accountable for their behaviors. SFS students are held to the honor code below. SFS has a zero-tolerance policy towards student cheating, plagiarism, data falsification, and any other form of dishonest academic and/or research practice or behavior. Using the ideas or material of others without giving due credit is cheating and will not be tolerated. Any SFS student found to have engaged in or facilitated academic and/or research dishonesty will receive no credit (0%) for that activity.

“I approach coursework, fieldwork, and research with integrity and commit to full participation. I do my own work with honesty and give credit where it’s due. I use tools and technology responsibly and only as permitted. I speak up when something conflicts with our shared values. I respect the communities we learn from and commit to ethical, non-extractive research that keeps knowledge connected to the places and people who share it with us.”

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. Grade corrections for any assessment item should be requested in writing at least 24 hours after assignments are returned. No corrections will be considered afterwards.

Content Statement – Every student comes to SFS with unique life experiences, which contribute to the way various information is processed. Some of the content in this course may be intellectually or emotionally challenging but has been intentionally selected to achieve certain learning goals and/or showcase the complexity of many modern issues. If you anticipate a challenge engaging with a certain topic or find that you are struggling with certain discussions, we encourage you to talk about it with faculty, friends, family, the HWM, or access available mental health resources.

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.

AI Usage for Assignments – SFS acknowledges the growing role of artificial intelligence (AI) tools in education and professional settings. While AI can be a valuable resource for learning and productivity, its use must align with the learning goals and integrity of each assignment. For this reason, students are encouraged to discuss the acceptable uses of AI for each assignment with the instructor. If you wish to use AI for any part of an assignment, consult with the instructor beforehand to ensure that its use adheres to the academic expectations of the course. Let's work together to navigate this evolving landscape responsibly!

Course Content

L: Lecture, **WS:** Workshop, **D:** Discussion

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
01	DR Course Introduction	L	1.5
02	The scientific method & designing ecological studies You will learn how to plan and design an ecological study and the main techniques that are used in this field.	L/WS	1.5
03	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
04	Research Ethics	L	2.0

	Introduce students to the ethical considerations involved in research (e.g. human subject protection, data integrity and management).		
06	Risk & Time Management in Field Research	L	1.0
07	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
08	Making 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
09	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
10	DR Final Presentations	D	5.0
Total		25.5 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	