



**S F S** THE SCHOOL  
FOR FIELD STUDIES

## Directed Research SFS 4910

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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 Overview

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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 distinguish (or do not) fact from interpretation, cause from correlation, and advocacy from objectivity. The Directed Research topics are driven by needs and interests of local stakeholders, partners, and friends of SFS in the Mekong region. 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, livelihoods, and environmental ethics. The Directed Research course is designed to build on the information students have learned in the Ecosystems and Livelihoods, Conservation Science and Practice, and Environmental Ethics and Development 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 research projects being conducted this semester will be elaborated and introduced to students by the faculty as the semester progresses.

## CCDS Research Direction

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The Centre for Conservation and Development Studies is developing their research foci under four themes. These are in an ongoing period of review and extrapolation as the Strategic Research Plan is prepared for the Centre. The directed research projects being undertaken this semester play a key role as scoping studies within these themes to refine the research direction and maximize the research output of the Centre.

### ***Biodiversity Conservation and Ecology***

This theme includes research topics such as:

- Biodiversity surveys of Cambodian national park
- Monitoring of aquatic and terrestrial flora and fauna
- Measuring habitat characteristics and plant community composition
- Assessing nutrient content in plants, water and soil
- Elephant resource use and habitat selection in a highly fragmented landscape
- Methods for determining species population densities

### ***Environmental Governance and Natural Resource Management***

This theme examines the interactions between social and environmental factors in environmental conservation and development and includes research topics such as:

- Management of common-pool resources
- Management and usage practices in Community Protected Areas and Community Forests
- Local perceptions of ownership and usage rights of natural resources and changes over time

- Community usage patterns of natural resources, both traditional and current
- Community knowledge and management of fire in Cambodian agricultural landscapes
- Monitoring & evaluation of community environmental education programs
- Role of monks/Buddhism in environmental education and environmental ethics

### **The Human Environment Nexus**

Research topics under this theme explore the relationship between communities and their environment such as:

- Traditional ecological knowledge of forests/fishing/agriculture/heritage crops and resource use
  - Wild and domesticated medicinal plants
  - Changes in natural resource use
- Beliefs and perceptions about human relations with natural environments
  - Shifts in cultural identity and livelihood practices by forest-dwelling communities
- Livelihood adaptations to changing environmental and social conditions
  - Subsistence and cash crop production
- Community interactions with forest and natural resources
  - Forest frontier migration
- Human wildlife conflict in highland Cambodia
  - Exploring local perceptions of human-elephant conflict, assessing mitigation strategies, and developing a protocol for recording conflict data in the Eastern Plains Landscape

### **Assessment**

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<b>Assessment Item</b>	<b>Value (%)</b>
1. DR Proposal	
Research Outline/Protocol	
Draft Introduction/Methods	5
Draft Results/Full Outline	5
2. Final Report	40
3. Presentation	20
4. DR Skills	20
5. Data Management	10
<b>TOTAL</b>	<b>100</b>

### **Assessment Descriptions**

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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. Students will also participate in sharing their DR projects during community night.

## **Project Proposal**

The project proposal component has three elements: a project proposal/research protocol which must be submitted but is ungraded, a draft of introduction and methods and a draft of results and report outline.

### **1. Project Proposal/Research Protocol**

Each DR supervisor will work with students to prepare a brief DR project proposal setting out what each student intends to investigate and what general methods will be employed and, depending on the form of the project, a research protocol that incorporates a topic guide.

### **2. Draft Introduction and Methods (5%)**

The draft introduction should be developed after reviewing relevant literature. One day is allocated for students to undertake a 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 introduction 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 draft introduction should then establish the aims and objectives of the research.

### **3. Draft of Results/Report Outline (5%)**

The main objective of the Report Outline is for students to provide a full draft of the results section and detailed framework of their discussion for feedback. It must include the draft introduction and methods sections along with a draft results section and a draft or an outline of the discussion findings.

## **Final Report (40%):**

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 classes 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 (20%):**

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

## **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, interview transcripts, and code families 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 (20%):**

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

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A	95.00 – 100.00%	B+	86.00 – 89.99%	C+	76.00 – 79.99%	D	60.00-69.00%
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

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**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). The Directed Research unless specifically stated should be individual pieces of work.

**Deadlines:** Deadlines for tasks and 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 what 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 activities, bring the necessary equipment for field exercises and Directed Research, and simply get involved.

## Course Content

<b>Lecture Title and Description</b>	<b>Time (hrs)</b>	<b>Lecturer</b>
<b>DR Course Introduction</b> Familiarize students with the process of science and research at SFS	1	Professors
<b>DR Scientific Writing</b> Structure of a scientific paper and publishing scientific work	2	Guest Lecturer, Professors
<b>Recording, Analyzing and Interpreting Quantitative Data</b> Field practice in collecting scientific data through bat counts and interpreting the data	2	Guest Lecturer, Professors
<b>Qualitative Research Skills and Methods</b> Introduction to qualitative research and the methods used	2	Professors
<b>Quantitative Research Skills and Methods</b> Introduction to quantitative research and the methods used	1	Professors
<b>DR Project Descriptions and Introductions</b> Faculty introduce the DR projects running this semester	1	Professors
<b>Ethics in Research</b> Introduce students to the ethical considerations involved in research. Human subject protection protocols	1	Professors
<b>Risk and Time Management in DR</b> Use of time and planning in research	1	Professors
<b>DR Skill Preparation and Methodology Design</b> Learning skills and understanding research methods	1.5 days	Professors
<b>Literature Review Skills</b> Undertaking online literature searches and understanding the relevance and importance of different levels of sources from peer reviewed articles to grey literature	1 day	Professors
<b>Data Management and Analysis</b> Dealing with research data, entry and organisation of data and using Appropriate methodology used to analyse data	2	Professors

<b>Effective Scientific Communication Skills</b> Oral presentation skills and communication of scientific results including through poster sessions and conferences	1	Professors
<b>Project Proposal and Final Report</b> Faculty will discuss the requirements and expectations of all components of their projects with a particular emphasis on the project proposal	1	Professors
<b>Field Work</b>	10 days	Professors
<b>Data Analysis and Write Up</b>	9.5 days	Professors
<b>Preparation and Delivery of Oral Presentation</b>	1 day	Professors
<b>Preparation of Research Posters</b>	1 day	Professors
<b>Total</b>	15 hours + 24 days	