Environmental Science 4970F Independent Study (0.5 FCE)

Course Coordinator: Ben Rubin, Department of Biology
Office location: BGS 3072
Office hours: By appointment
Email: brubin2@uwo.ca
Phone: (519) 661-2111 ext. 87475

Eligibility: Registration in the 4th year of a Major or Specialization module in Environmental Science or with special permission

Anti-requisite: Environmental Science 4999E

Course Description: The purpose of this course is to allow students registered in a Major or Specialization module in Environmental Science to undertake a one-term, interdisciplinary research project related to environmental science under the supervision of a faculty member. Student projects will be research based: possibilities include original data collection and analysis, analysis of existing literature, or the analysis of an existing data set. Students must write a proposal and final project report for evaluation.

Admission Procedures: Students interested in completing an Environmental Science Independent Study course must contact the Course Coordinator prior to commencing a project. A list of the available faculty and potential research thesis topics are normally available from the Coordinator early in the winter term for projects to be undertaken in the following academic year. It is the responsibility of the student to meet with potential supervisors to discuss potential research projects. Once student and faculty member agree on a project, the student submits a “Project Registration” form to the Course Coordinator (form available on OWL or from course coordinator). If you cannot find a willing supervisor, you cannot take this course.

Co-supervision & Joint supervision: A co-supervisor is recommended if 1) the supervisor is not a faculty member and is recommended if the supervisor has not previously supervised an ES 4999E or ES 4970F/G student. The co-supervisor must be a faculty member who has supervised at least one ES 4970F/G student or ES 4999E student before. Co-supervisors are found with the help of the supervisor. Co-supervisors will be familiar with the course requirements and procedures, will attend project meetings. They are not responsible for supervising the research but will usually adopt an advisory role.

Joint Supervisors take on equal responsibility as supervisors.

Reader: A Reader is a normally a faculty member. You will discuss the choice of Reader with your supervisor(s).

Occasionally, senior graduate students or post docs may serve as supervisor, joint supervisor, or reader. Such arrangements must be approved by the course co-ordinator.

Course elements: The Environmental Science Independent Study course 4970F/G consists of:

1. Completion of all Health and Safety training requirements
2. Developing and writing a viable project proposal (maximum 1800 words)
3. Attending lab meetings or regular meetings with the supervisor(s) as appropriate
4. Conducting the proposed work
5. Writing a project report based on the work

**Project Proposals:** With the assistance of their Supervisors, Environmental Science 4970F/G students will prepare research proposals. Each proposal will be 1200-1800 words and consist of the following:

1. Abstract
2. Preliminary literature search
3. Statement of hypothesis (if hypothesis driven)
4. Description of the experimental design and/or planned methods and/or description of how data will be analyzed
5. References

Course requirements will vary depending on the type of study. The sequence and timing of course phases and milestones is shown on the timeline/flowchart (see last page of this syllabus). The proposal is evaluated by the reader.

**Lab/Library Work:** Normally, research begins shortly after the approval of the proposal by the supervisor and is completed by the 10th or 11th week of the term to allow adequate time for any analyses, report writing, and revisions. Students are expected to spend a minimum of 10 hours per week working on their project. The quality of the lab/library/analysis work will be assessed by the supervisor.

**Independent Study Project Report:** A project report presents the major findings of the project and the Reader draft is due the last day of lectures in the term you are registered. Reports should be 2500-3000 words (not including figures or tables) and consist of an abstract, introduction, body of text with appropriate subheadings, conclusion and references. Guidelines on how to write the report can be found on OWL. The report is evaluated by the reader. Within 1 week of receipt of the report students will receive a brief written report from the Reader, highlighting the strengths and weakness of the report and pointing out any changes that need to be made. Final draft copies of the report, including changes that may result after the evaluation by Supervisor and Reader must be submitted to the Supervisor and Course Coordinator (signed by the Supervisor) by the final day of the exam period in the term you are registered. A signed “Independent Study Research Report Approval” form must also be submitted to the course coordinator at this time. Late penalty is 5% per day.

**Student Roles and Responsibilities:** Environmental Science 4970F/G is not a traditional lecture style course. Students are expected to spend at least 10 hours per week working on the project. Students are responsible for completing all necessary forms (Project Registration, Project Proposal Approval, and Independent Study Project Report Approval) and submitting them, on time, to the Course Coordinator. Students are ultimately responsible for their own work, including the meeting of deadlines as established by the Supervisor.

**Supervisor Roles and Responsibilities:** Potential supervisors will submit project outlines to Course Coordinator for posting in the winter term. Typically, projects will be of sufficient nature for completion within one semester. Supervisors of student projects are expected to:

1. Arrange for the appropriate infrastructure and provide direction/guidance for the proposed work.
2. Ensure that projects provide sufficient challenge to students and comply with expectations established within the Faculty of Science.
3. Evaluate student performance.
4. Be available to meet with students on a regular basis.
5. When appropriate, integrate students into the existing laboratory, ensuring they are treated respectfully.
6. Ensure students receive the necessary health and safety training as well as any other relevant training (e.g. animal care) prior to the start of the project.

**Assessment:** Course grades are determined as follows:

<table>
<thead>
<tr>
<th>Course element</th>
<th>Assessor</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student’s effort and work process in developing proposal</td>
<td>Supervisor</td>
<td>10%</td>
</tr>
<tr>
<td>Quality of proposal</td>
<td>Reader</td>
<td>20%</td>
</tr>
<tr>
<td>Student’s efficiency, dedication, and ownership of research project*</td>
<td>Supervisor</td>
<td>20%</td>
</tr>
<tr>
<td>Student’s effort and work process in writing final report</td>
<td>Supervisor</td>
<td>10%</td>
</tr>
<tr>
<td>Quality of final report*</td>
<td>Reader</td>
<td>40%</td>
</tr>
</tbody>
</table>

* To pass the course, it is mandatory that you receive a passing grade on these components.

**Grading policy:** Supervisors and readers are instructed to adhere to the Senate-approved, university-wide grade descriptors.

<table>
<thead>
<tr>
<th>Grade</th>
<th>% Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>90 – 100</td>
<td>One could hardly expect better from a student at this level</td>
</tr>
<tr>
<td>A</td>
<td>80 – 89</td>
<td>Superior work which is clearly above average</td>
</tr>
<tr>
<td>B</td>
<td>70 – 79</td>
<td>Good work, meeting all requirements, and eminently satisfactory</td>
</tr>
<tr>
<td>C</td>
<td>60 – 69</td>
<td>Competent work, meeting requirements</td>
</tr>
<tr>
<td>D</td>
<td>50 – 59</td>
<td>Fair work, minimally acceptable</td>
</tr>
<tr>
<td>F</td>
<td>Below 50</td>
<td>Fail</td>
</tr>
</tbody>
</table>

See full policy at: [www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf)

**Academic accommodation:** If you are unable to meet one of the course deadlines (see timeline / flowchart) you should submit appropriate documentation to your Academic Counselor and see academic accommodation. Please familiarize yourself with [Western’s policy on academic accommodation](http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf). A student requiring academic accommodation due to illness should use the [Student Medical Certificate](http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf) when visiting an off-campus medical facility or request a Record's Release Form (Dean's Office) for visits to Student Health Services.

As appropriate, please read Western’s policies on [Accommodation for Students with Disabilities](http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf) or [Accommodation for Religious Holidays](http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf).

**Plagiarism Rules and Scholastic Offenses:** Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website:

[https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)

“Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks
where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).”

Plagiarism is not only cheating – since you are now researchers, it undermines the entire scientific enterprise. This concept applies with equal force to all assignments in Enviro Sci 4999E.

The following guides will help you avoid committing plagiarism:

http://www.lib.uwo.ca/tutorials/plagiarism/

http://www.uwo.ca/ombuds/guides/cheating_brochure.pdf

Turnitin.com

You will be required to submit your proposal, final report to turnitin.com. In the unlikely event that you haven’t come across it yet, turnitin.com is an anti-plagiarism tool that checks the text of your submission against the work of your classmates (which shouldn’t be a problem, since you all do different projects), the turnitin.com database (previous assignments submitted to turnitin.com) and the entire internet. This means that if you copy things from the internet (or from other students), you will be caught. Please be aware that turnitin.com is clever enough to detect plagiarism where a few words are changed in an attempt to make the passage ‘different’.

And for the legalese:

Assignments will be subject to submission to turnitin.com for textual similarity review by the commercial plagiarism software under license to the University. All documents submitted to the turnitin.com system will be included as source documents in the reference database for the purpose of detecting plagiarism in documents subsequently submitted to the system. Use of this service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

The Writing Support Centre can help students to improve their writing skills. Writing resources and/or expert writing counsellors are available to you. http://www.sdc.uwo.ca/writing

The Student Development Centre has many other support services available to students. http://www.sdc.uwo.ca/

The website for Registrarial Services is: http://www.registrar.uwo.ca