

# **ENVR 3500 PROJECT IN ENVIRONMENTAL SCIENCE AND STUDIES COURSE OUTLINE 2015-2016**

**CREDIT:** 3 hours (Fall or Winter terms)

**PREREQUISITE:** Normally, good standing as a Third or Fourth Year student in Environmental Science or Studies

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Office hours: By appointment

## **1. EXPECTATIONS**

ENVR 3500 is an independent research project course. It counts for 3 credit hours, and it may be completed in either the Fall or Winter term. You will need to arrange to work with a particular professor or qualified advisor (i.e., someone with a track record of research or study in your area of interest) on a mutually agreeable research problem. Co-advising arrangements are encouraged. Students in ENVR 3500 are expected to maintain a steady level of work during the entire academic term, likely committing 5-10 hours per week to their project. Students must consult regularly with their advisor to ensure that their work stays on track. Every student in ENVR 3500 is expected to conform to university standards regarding research at all times.

## **2. CLASS MEETINGS AND DEADLINES:**

There are no regular lectures or labs, but the following meetings of the class will be scheduled in a location to be determined:

### **For Fall 2015**

A project proposal symposium in **late September 2015**

A final report symposium in **early December 2015**

### **For Winter 2015**

A project proposal symposium in **late January 2016**

A final report symposium in **early April 2016**

Final dates will be selected in consultation with students and advisors based on their availability.

In addition, students should meet individually with their advisor regularly to discuss the status of their research. If you have difficulty meeting with your advisor, or feel you are being neglected, please contact the course coordinator as soon as possible so that we may remedy the situation.

Notes:

1. All submissions for the course should be provided electronically to the advisor and course coordinator.
2. The finalized version of your project proposal should be submitted for grading the day of the oral proposal presentation.
3. The progress report should be submitted at least 1 day prior to the oral progress presentation.
4. The final thesis report should be submitted at least 2 days prior to the oral final presentation.

### **3. COURSE CONTENT AND PROCEDURES:**

The course is designed to give students experience in conducting scientific environmental research, from the inception and planning stages through study execution, data analysis, written reporting and oral communication. Each student will be responsible for finding an advisor, from among University of Manitoba faculty or other environmental professionals, who is willing and able to supervise the research project. Data collection for the project is generally carried out during the fall or winter terms. Students may also use data gathered during the preceding summer's employment, provided that both the employer and the student's project advisor agree in writing beforehand to the student's use of these data. Non-experimental projects involving summarization and analysis of existing data or the theoretical exploration of a problem using literature and/or web-based sources are also acceptable. The course coordinator will act with the advisor to grade and assess student progress.

#### **3.1 Registration in the course**

Prior to being granted permission to register in the course, each student will prepare a ½-1 page summary of their proposed research and submit that to the course coordinator. The summary should generally identify the research purpose, objectives and goals, a list of possible methods to be employed, and the name and affiliation of the proposed advisor(s).

#### **3.2 Research proposal and review**

In consultation with the advisor, each student will prepare an 6-8 page written research proposal before formally starting a project. The student will present the proposal orally to course participants and the final version of their proposal in accordance with the guidelines below to their advisor and the course coordinator on the dates discussed above.

#### **3.2 Final Report**

The final report should be written in accordance with the guidelines given below. All reports will be presented orally at the end of the Fall or Winter term.

### **4. GRADING**

The course grade for each student will be assigned by the course coordinator, on the basis of evaluations from the student's advisor and the course coordinator.

Marks will be allocated as follows:

1. The research proposal = **10%**
  2. The research proposal presentation = **10%**
  3. The comportment of the student (evaluated by the advisor only) = **20%**
  4. The report as a written document = **40%**
  5. The final oral presentation = **20%**
- Total = **100%**

Resultant values will be a mean of the marks submitted by the advisor and course coordinator.

#### **4.1 Plagiarism and cheating**

Students should be careful to attribute properly the sources of ideas and information used in their written and oral presentations. Plagiarism carries severe penalties -- **see relevant discussion in the University of Manitoba Undergraduate Calendar**. Students uncertain as to what constitutes plagiarism should consult their advisors or the course coordinator.

### **5. GUIDELINES FOR WRITING THE RESEARCH PROPOSAL:**

The Project research proposal is generally 6-8 double-spaced pages in length. The following points should be covered, preferably in the order given. These do not represent required section headings for the proposal, however before you begin to write, you should consult with your advisor to determine if all of these points are relevant to your proposal and if there are any additional items that should be included. These points are:

- Title Page
- Introduction and Background
- Research Purpose and Objectives and/or Hypotheses
- Planned Methods
- References

#### **5.1 Title Page**

The title page should include your name, the title of the proposal, advisor's name, course number, and date of submission.

#### **5.2. Introduction and Background**

For the research proposal, this section should comprise up to half of the written work. The intent is to summarize the current state of the subject you are going to investigate, and provide a context for the work you are going to propose. When done properly, the reader will be led to the same conclusion as yourself: that the work you are proposing is both a logical extension of the work that has preceded it and a necessary contribution to the field of study. This section is considered preliminary, as by the time you complete your research, you will have also done more reading on the subject, and the literature review you provide in your final report will be more complete than the one you are able to complete for your project proposal.

### **5.3 Research Purpose and Objectives and/or Hypotheses**

In this section, you must clearly state the overall purpose of your research project and outline the specific research objectives and goals you expect to achieve. Note that some research projects lend themselves to hypothesis testing, others do not. Discuss what is best for your particular case with your advisor. To be effective, this section should be brief and to the point (i.e., no more than 1 page). A numbered list is an effective way to state your objectives. You should confer with your advisor on this section in some detail, since he/she will be able to help you define realistic objectives and goals and/or hypotheses for your project. Ultimately your advisor and the course coordinator will evaluate your objectives and goals with the intent of determining if they are realistic and suitable within the context of an ENVR 3500 project.

### **5.4 Planned Methods**

In this section, you need to provide some detail about how you plan to carry out your research project. Specific methods should be described for each research objective. You do not need to provide elaborate details about specific techniques, but you do need to defend your choices. For example, you might outline a general scheme for an experiment, a survey, video production, or provide an example derivation for a calculation. A flow chart is often a very useful approach to clearly outline what you plan to do. As with the Introduction, you need to cite references for the work you use to justify the chosen techniques. Note that University of Manitoba Research Guidelines should be consulted to determine if any approvals are required for your proposed research ([http://umanitoba.ca/research/orec/orec\\_home.html](http://umanitoba.ca/research/orec/orec_home.html)).

### **5.5 References**

See Section 7 below.

## **6. GUIDELINES FOR WRITING THE FINAL REPORT:**

The final report should generally follow University of Manitoba graduate theses in format ([http://umanitoba.ca/faculties/graduate\\_studies/thesis/guidelines.html](http://umanitoba.ca/faculties/graduate_studies/thesis/guidelines.html)), and is generally 15-20 double-spaced pages in length.

The format for most project reports is as follows (but discuss alternate formats with your advisor):

1. A title page

.....

The title of the report

by

Author's Name

A report submitted to the Department of Environment and Geography,  
University of Manitoba,  
in partial fulfillment of the requirements for course  
ENVR 3500

Month, year

.....

2. An **abstract** of maximum 200 words summarizing the problem, methods, results and conclusions

3. **Acknowledgements**

4. **Table of Contents** (beginning on a new page)

5. **List of Tables**

6. **List of Figures**

This should be followed by the main body of the report:

7. **Introduction and Background**, outlining research purpose, objectives, questions and/or hypotheses addressed, in the context of relevant literature

8. **Methods**

9. **Results**

10. **Discussion**

11. **References**

12. **Appendices** (if necessary)

**References:**

For the purposes of your proposal (and later for the final report) you will need to cite

appropriate literature. The method for citing references in the text of theses is generally the name and date method, e.g., (Author, 2006), (Author and Author, 2006) or (Author et al., 2006) when there are three or more authors. When multiple references are used for a given point, place them in chronological order, separated by semi-colons. Papers are then listed in alphabetical order (according to the first author's surname) at the end of the paper in the reference section.

Basic style is as follows, but be sure to discuss with your advisor if you should consult a particular Journal or Style Guide for your area of study:

- *Book*: Author AB, Author CD. 2004. *Title of Book*. Publisher, City, ST, Country.
- *Book Article*: Author AB, Author CD. 2004. Title of article. In Adams AB, Smith DC, eds, *Title of Book*, 2nd ed, Vol 1-Toxicology. Publisher, City, ST, Country, pp 1-5.
- *Journal Article*: Author AB, Author CD. 2004. Title of article. *Environ Toxicol Chem* 16:2200- 2204.
- *Proceedings*: Author AB, Author CD. 2004. Title of article. *Proceedings*, Name of Conference, City, ST, Country, date (month, days, year), pp 00-00 (if no page numbers are available, cite parenthetically in the text).
- *Report*: Author AB. 2004. Title of report. EPA 600/334/778. Final/Technical Report. U.S. Environmental Protection Agency, Washington, DC.
- : Author AB. 2004. Title of thesis. University, City, ST, Country.

## 7. GUIDELINES FOR THE ORAL PRESENTATIONS:

The following guidelines refer specifically to the oral presentations in the Project course. The goal of these presentations is to summarize your research plans or results prior to discussion and to provide visual aids to assist in that discussion. A Powerpoint or similar media should be used in all cases. The presentation should be concise and no more than 10 minutes in duration for the research proposal and progress report, and no more than 15 minutes in duration for the final presentation.

## 9. GRADING SCALE

<b>A+</b>	<b>90-100</b>	<b>C+</b>	<b>65-69</b>
<b>A</b>	<b>80-89</b>	<b>C</b>	<b>60-64</b>
<b>B+</b>	<b>75-79</b>	<b>D</b>	<b>50-59</b>
<b>B</b>	<b>70-74</b>	<b>F</b>	<b>0-49</b>