

ENVR 4500 ENVIRONMENTAL SCIENCE AND STUDIES THESIS PROJECT COURSE OUTLINE 2015-2016

CREDIT: 6 hours (fall and winter terms)

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

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Office hours: By appointment

1. EXPECTATIONS

ENVR 4500 is an independent research project course. It counts for 6 credit hours, and it extends over both the fall and winter terms. 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 4500 are expected to maintain a steady level of work during the entire academic year, 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 4500 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:

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

A progress update presentation in **mid-January 2016**

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

Final dates will be selected 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 using the 'Dropbox' function on the University of Manitoba Learn (www.umanitoba.ca/d2l) website and/or by email.

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 Honours 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 and 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 1-2 page summary of their proposed thesis research and submit that to the course coordinator. The summary should generally identify the need for the study based on past work in the area, research purpose, objectives and goals, 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 8-10 page written research proposal before 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 in late September.

3.3 Progress report

Each student will prepare a written progress report at the beginning of the Winter term, by which time the project should be well underway. The report will be orally presented to the advisor and the course participants and reviewed in mid-January.

3.4 Final Report

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

3.4 Departmental copy

The advisor and course coordinator will agree upon any final editorial corrections that the student should make to the report. Major substantive changes are not permitted at this stage. One final corrected copy of the report should then be submitted electronically to the course coordinator before the end of the Winter academic term. Electronic copies of all theses will be maintained by the Departmental office.

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 = **5%**
2. The research proposal presentation = **5%**
3. The progress report = **10%**
4. The progress report presentation = **5%**
3. The comportment of the student (evaluated by the advisor only) = **25%**
4. The report as a written document = **40%**
5. The final oral presentation = **10%**
- Total = **100%**

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

4.1 Midterm evaluation

Students will receive evaluations from their advisor after the research proposal review meeting and the progress report review meeting prior to the University Voluntary Withdrawal Deadline. The course coordinator will provide each student with their grade summary at any time throughout the year upon request.

4.2 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.

4.3 Communication with students

The University of Manitoba has a new policy on electronic contact with students that requires **all email contact on university business to use students' official University email addresses**. The policy is at:

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html

5. GUIDELINES FOR WRITING THE RESEARCH PROPOSAL:

The Honours Project research proposal is generally 8-10 double-spaced pages in length. The following points should generally 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 in the spring, 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 4500 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 very useful 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 Guidelines should be consulted to determine if any approvals are required for your proposed research (http://umanitoba.ca/research/orec/orec_home.html).

5.5 References

See Section 7 below.

6. GUIDELINES FOR WRITING THE PROGRESS REPORT:

The written progress report should concisely describe and analyze for the advisor and course coordinator the findings of the project to date. Progress reports are generally no more than 5 pages in length. A suitable format could include (but be sure to discuss the format with your advisor who might suggest an alternative approach):

1. Purpose and Objectives (restate briefly; cite your research proposal for elaboration)
2. Methods (cite your research proposal for the basics; describe any modifications fully)
3. Preliminary Results and Discussion, including comparisons with literature or web-based sources
4. Challenges and Problems
5. Outlook for successful project completion

The progress report should state the project's purpose, objectives, and methods very briefly if these have not been altered from the original research proposal. Any substantive changes in the proposal should, however, be described fully. The preliminary report should emphasize mainly the preliminary results that have been obtained to date, wherever possible through a preliminary graphical or tabular presentation of data and some assessment of their significance. This presentation should be integrated with a brief discussion comparing the results obtained with the outcomes expected on the basis of relevant literature. An appraisal of research challenges and problems should be described, as well as a timeline or an assessment of the potential for the project's successful completion.

7. GUIDELINES FOR WRITING THE FINAL THESIS REPORT:

The final honours thesis report should generally follow University of Manitoba graduate theses in format (http://umanitoba.ca/faculties/graduate_studies/thesis/guidelines.html). An honours thesis is generally at least 20 pages in length, exclusive of tables, figures and references.

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

1. A **title page** (not numbered), as follows:

.....

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 4500 (Honours Thesis Project)

Month, year

.....

2. An **abstract** of maximum 200 words summarizing the problem, methods, results and conclusions (numbered page i - sequential small Roman numerals follow)

3. **Acknowledgements** (page ii)

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

5. **List of Tables** (beginning on a new page)

6. **List of Figures** (beginning on a new page).

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

7. **Introduction and Background** (beginning on page 1 - sequential Arabic numerals hereafter), 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)

Text should be **Times New Roman, size 12 font and double-spaced**. Figure legends, tables and references may be single-spaced; references should then be separated by a

blank line. **Margins** should be 1 inch (2.5 cm) at the top, bottom and right-hand edges of the page, and 1.5 inches (3.8 cm) at the left. **Figures** should be placed on separate pages in the text after each is first cited. The figure legend may be printed below the figure on the same page (this page would be numbered sequentially with the text), or the legend may be placed on the preceding page facing the figure (in this case, the page with the legend receives a number but the page with the figure does not). **Tables** should likewise be interleaved and paginated in sequence with the text after they are first cited.

References:

For the purposes of your proposal (and later for your progress and final reports) 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.
- *Thesis*: Author AB. 2004. Title of thesis. University, City, ST, Country.

8. GUIDELINES FOR THE ORAL PRESENTATIONS:

The following guidelines refer specifically to the three oral presentations in the Honours 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

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