

EESC15: Research Seminar in Environmental Science

Course meeting: Fridays from 10am-1pm

Room: BV 361

Course coordinator: Prof. MJ Simpson

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Office: SY 322

Office hours: by appointment

Grade Distribution:

Assignment 1	10 %
Assignment 2	10 %
Assignment 3	10 %
Class Participation	15 %
Research Proposal Oral Presentation	15 %
Research Proposal Written Paper	40 %

Course Description, Goals and Guidelines: This course is designed to familiarize senior undergraduates with:

- (i) the basic scientific research principles and a range of approaches and methods adopted in solving **basic** and **applied** research problems in environmental science;
- (ii) the design, presentation and implementation of a research proposal;
- (iii) the oral and visual aid skills necessary for the presentation of a formal research proposal and a research seminar;

In the first half of the course following a brief review of scientific explanation, emphasis will be placed upon the structure of research, focusing upon: (i) problem isolation and definition; (ii) hypothesis generation and testing; (iii) data collection and analysis; (iv) experimentation and analysis; (v) model building; (vi) interpretation of results and conclusions; (vii) writing up the final proposal/report/paper. These items will be discussed in the context of the study of specific environmental systems and environmental issues.

Students will be expected to participate actively in the course in several ways: (i) to be involved in a general discussion after each seminar presentation; a number of specific readings will be assigned to assist student participation; and (ii) to present an individual research proposal to the class within a restricted time frame for presentation.

Class Participation: Students are expected to actively participate in discussions, ask questions of presenters and have excellent attendance. The quality of students' questions will also be considered when tabulating the final grade. Students with poor attendance records and those who do not participate in the course discussion will receive a grade of zero. Students are also expected to behave appropriately during formal presentations by guest speakers and other students (ie: no sleeping, loud eating/drinking, texting or other disruptive behavior).

Course email policy: Email is not an effective way of teaching and email inquiries regarding course content will not be answered.

Late assignments: All written assignments are due at the beginning of class. Late assignments will not be accepted and assigned a grade of zero. Failure to attend a presentation will result in a grade of zero.

Plagiarism: Plagiarism will not be tolerated. Students are expected to submit **individual and independent work** for grading. It is an academic offense to plagiarize and those who do, will be subjected to University procedures.

EESC15 Class Schedule 2011

Date	Lecture Topic	Student Assignment
Jan 14 th	<ul style="list-style-type: none"> - Course orientation - Writing centre resources - Introduction to the scientific method 	Course readings Selection/Discussion of Research Proposal Topics
Jan 21 st	<ul style="list-style-type: none"> - Critical evaluation of the literature - Developing a research proposal - Discussion of research proposal topics 	Course readings Selection/Discussion of Research Proposal Topics
Jan 28 th	<ul style="list-style-type: none"> - Preparing and writing scientific reports; oral presentations - Discussion of research proposal topics 	Course readings Selection/Discussion of Research Proposal Topics
Feb 4 th	Guest seminar <i>Dr. M. Meriano (University of Toronto)</i> <ul style="list-style-type: none"> - Philosophy of science & scientific ethics - Discussion of research proposal topics (Specific) 	Discussion of Research Proposal Topics Students submit Assignment 1 at the beginning of class
Feb 11 th	Guest seminars <i>Dr. Silvia Mancini (Golder Associates Ltd.)</i> <i>Dr. Jennifer McKelvie (Nuclear Waste Management Organization)</i> <ul style="list-style-type: none"> - Discussion of research proposal topics 	Discussion of Research Proposal Topics
Feb 18 th	Guest seminars <i>Dr. Melissa Whitfield Åslund (University of Toronto)</i> <i>Dr. Jessica D'eon (University of Toronto)</i> <ul style="list-style-type: none"> - Discussion of research proposal topics 	Discussion of Research Proposal Topics
Feb 21-25 th	READING WEEK	
Mar 4 th	Guest seminars <i>Professor Carl Mitchell (University of Toronto)</i> <i>Professor Mathew Wells (University of Toronto)</i> <ul style="list-style-type: none"> - Discussion of research proposal topics 	Students submit Assignment 2 at the beginning of class Discussion of Research Proposal Topics
Mar 11 th	Student Seminars (schedule to be announced) <i>(30 minutes + 10 minutes discussion/questions for each student seminar presentation)</i>	Students submit Assignment 3 at the beginning of class
Mar 18 th	Student Seminars (schedule to be announced) <i>(30 minutes + 10 minutes discussion/questions for each student seminar presentation)</i>	
Mar 25 th	Student Seminars (schedule to be announced) <i>(30 minutes + 10 minutes discussion/questions for each student seminar presentation)</i>	
April 1 st	Student Seminars (schedule to be announced) <i>(30 minutes + 10 minutes discussion/questions for each student seminar presentation)</i>	
April 8 th	Students submit written research proposals by 4pm	

Course Readings:

Week 2 readings (please read before coming to class on January 21st):

- 1) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 17-33.
- 2) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 35-43.
- 3) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 111-136.
- 4) Hicks, C.R. 1993. Fundamental concepts in the design of experiments, 4th edition. Oxford University Press, Oxford, UK. pp 1-15.
- 5) Ford, D.E. 2000. Scientific method for ecological research. Cambridge University Press, Cambridge, UK. pp73-102.

Week 3 readings (please read before coming to class on January 28th):

- 1) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 157-184.
- 2) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 185-211.
- 3) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 213-229.

Week 4 readings (please read before coming to class on February 4th):

- 1) Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA. pp 279-292.
- 2) Macrina, F.L. 2005. Scientific integrity, 3rd edition. ASM Press, Washington D.C., USA. pp 19-37.
- 3) Orr, D.W. 1994. Earth in mind: on education, environment, and the human prospect. Island Press, Washington D.C., USA. pp 7-15.
- 4) Orr, D.W. 1994. Earth in mind: on education, environment, and the human prospect. Island Press, Washington D.C., USA. pp 94-98.
- 5) Orr, D.W. 1992. Ecological literacy: Education and the transition to a postmodern world. State University of New York Press, Albany, NY, USA. pp 85-95.
- 6) Orr, D.W. 1992. Ecological literacy: Education and the transition to a postmodern world. State University of New York Press, Albany, NY, USA. pp 109-124.