

EESC15S Schedule 2010: Research Seminar in Environmental Science

Course meeting: **Wednesday, 13:00-17:00 in SW221**

Course coordinator: Prof. M. Dittrich

Office: SY 346, Office hours: by appointment (email for an appointment at least 24 hours in advance), Email:mdittrich@utsc.utoronto.ca

Grade Distribution:

Class Participation: 10 %

Research Proposal Presentation: 10 %

Research Proposal (written) 30 %

Seminar Presentation 15 %

Seminar Paper (written) 35 %

Course Guidelines:

1) 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, eating or other disruptive behavior).

2) Lecture notes/Course Readings:

The lecture slides will be posted in *.pdf format on the course page on the intranet. You will require Adobe Reader to open the files (available free of charge at www.adobe.com).

3) Course email policy:

Email is not an effective way of teaching and email inquiries regarding course materials will not be answered.

4) Late assignments:

All written assignments are due at the beginning of class. Late research proposals and seminar papers will be deducted by 10% per day for each day they are late. Failure to attend a presentation will result in a grade of zero.

5) Plagiarism:

Plagiarism will not be tolerated. Students are expected to submit **individual work** for grading. It is an academic offense to plagiarize and those who do, will be subjected to University procedures. Students who plagiarize will be reported to the Department Chair with a recommendation that a grade of zero be assigned.

Course Description:

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;
- (iv) the appropriate format for presenting a written proposal/seminar/research report.

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 attend a series of seminars presented both by the instructor and by other faculty and/or graduate students in Environmental Science. The latter will present overviews of research approaches and techniques within the context of specific research projects as examples.

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; **(ii)** to present an individual research proposal to the class within a restricted time frame for presentation; **(iii)** to present a longer formal seminar on a topic to be selected in conjunction with the instructor around a common theme. Items **(ii)** and **(iii)** can be developed in consultation with an appropriate faculty member or even graduate student. Each of these components will be graded as an oral and written assignment. For the research proposal, each student will select a specific problem in which she/he is interested, and then proceed to design a research programme to solve the problem and present that design both in a short oral presentation and in a more formal written proposal.

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Date	Lecture Topic	Required Reading	Student Assignment
Jan-06	<ul style="list-style-type: none"> • Course orientation • Writing centre resources • The research proposal: possible research topics • The research seminar theme 	<ul style="list-style-type: none"> • Assignments posted on intranet • Writing resources posted on intranet 	
Jan-13	<ul style="list-style-type: none"> • Introduction to the scientific method • Discussion of research proposal topics 	<ul style="list-style-type: none"> • See week 2 reading Montello, D.R. and P.S. Sulton, pp 1-43 and 11-136 Hicks, C.R., pp1-15 Ford, D.E., pp73-102 	Selection of Research Proposal Topics -students must submit a research proposal topic
Jan-20	<ul style="list-style-type: none"> • The scientific method (continued) • Guest Research Seminar 1:30-3pm: Maria Romero, University of Sheffield, United Kingdom, 	<ul style="list-style-type: none"> • See week 3 reading Montello, D.R. and P.S. Sulton, pp 157-229 	Selection of Research Proposal Topics -students must submit a research proposal topic
Jan-27	<ul style="list-style-type: none"> • Philosophy of science and scientific ethic • Discussion of research proposal topics 	<ul style="list-style-type: none"> • See week 4 reading Montello, D.R. and P.S. Sulton, pp 157-229 Macina, F.L., pp19-37 Orr, D.W., Earth in mind, pp7-15, Orr, D.W., Ecological literacy, pp85-95, 1209-124 	Seminar topic suggestions, approvals and presentation date allocations – students must submit their topic for their seminar presentation and topic. The presentation schedule will also be determined
Feb-03	Student Proposal Presentation (15 minutes, 5 minutes discussion/questions for each student proposal presentation)		
Feb-10	Student Proposal Presentation (15 minutes +5 minutes discussion/questions for each student proposal presentation)		All students submit research proposals for grading at the beginning of glass
No Classes- Reading Week			
Feb-24	Guest Research Seminar (to be announced)		
Mar-03	Guest Research Seminar (to be announced)		
Mar-10	Students seminars (schedule to be announced) (30 minutes + 15 minutes discussion/questions for each student proposal presentation)		March 10 th presenters hand in seminar paper on March 17 th
Mar-17	Students seminars (schedule to be announced) (30 minutes + 15 minutes discussion/questions for each student proposal presentation)		March 17 th presenters hand in seminar paper on March 24 th
Mar-24	Students seminars (schedule to be announced) (30 minutes + 15 minutes discussion/questions for each student proposal presentation)		March 24 th presenters hand in seminar paper on March 31 st

Mar-31	Students seminars (schedule to be announced) (30 minutes + 15 minutes discussion/questions for each student proposal presentation)		March 24 th presenters hand in seminar paper on March 31st
Apr-07	No lectures		March 31st presenters hand in seminar paper on April 7th

Literature

(Please read the chapters before coming to class)

- Montello, D.R. and P. C. Sutton. 2006. An introduction to scientific research methods in geography. Sage Publications, Thousand Oaks, California, USA.
- Hicks, C.R. 1993. Fundamental concepts in the design of experiments, 4th edition. Oxford University Press, Oxford, UK.
- Ford, D.E. 2000. Scientific method for ecological research. Cambridge University Press, Cambridge, UK.
- Orr, D.W. 1994. Earth in mind: on education, environment, and the human prospect. Island Press, Washington D.C., USA.
- Orr, D.W. 1992. Ecological literacy: Education and the transition to a postmodern world. State University of New York Press, Albany, NY, USA.