

Fall 2017

**Research Design and Dissemination in
Earth & Environmental Sciences (Earth Sc 3RD3)**

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Prerequisite(s): Registration in Level III or above of an Honours B.Sc. program in the School of Geography and Earth Sciences
Anti-requisite(s): GEOG 3MR3

Course Outline:

Scientific knowledge has been continuously advanced through the formulation of research questions, the designing of actual studies, the interpretation of gathered information, and the dissemination of scientific results. This course will discuss the basic approaches of research design and the effective methods of research dissemination in the field of earth and environmental sciences. The course is designed to prepare students who wish to write a senior thesis or a review paper for their respective 4th year undergraduate program in the School of Geography and Earth Sciences. It will include a variety of laboratory activities that will help students to create their own research projects and to develop skills in communicating their research results.

Course Objectives: By the end of this course students should:

- Be familiar with various citation metrics and on-line research tools.
- Demonstrate basic skills that are fundamental to the formulation of scientific research.
- Utilize appropriate skills to disseminate their research findings effectively.
- Propose their own research topic for their senior thesis or review paper.

The main objective of this course is to introduce effective methods of research design and dissemination in the field of earth and environmental sciences.

Course Structure:

- Two 1-hour lectures period per week given Monday and Wednesday (BSB-106, 2.30-3.20). All students are expected to attend lectures.
- A laboratory (discussion and working) session will be held on Wednesday after the lecture (BSB-106, 3.30-5.20). Sometimes the Wednesday sessions will be combined depending upon presentation schedules, etc. A series of assignments will be handed out and collected during the laboratory sessions. Again, students are expected to attend all labs.

Textbook:

There is no mandatory textbook, but there are a few good ones out there for people who are interested in the scientific communication and research.

- *Writing Science: How to write papers that get cited and proposals that get funded.* Joshua Schimel. 2011.
- *The Scientists Guide to Writing: How to write more easily and effectively through your scientific career.* Stephen B. Heard. 2016. Princeton University Press.
- *How to Write and Publish a Scientific Paper.* Barbara Gastel & Robert A. Day. 2017 (8e). Greenwood.
- *Planning Research: a concise guide for the environmental and natural resource sciences.* John C. Gordon. 2007. Yale University Press.
- *Making Sense: A student's guide to research and writing.* Geography and Environmental Science. 2015. Oxford University Press.

Course Evaluation

Topic	Grade
Participation and Attendance	15%
Research Topic Review	8%
Research Statement and Bibliography	8%
3 Minute Research Pitch	3%
Writing a Scientific Paper	11%
Critiquing a Scientific Paper	7%
Designing a Scientific Poster	6%
Draft Proposal	7%
Final Research Proposal	25%
Proposal Presentation	10%

If you are unable to submit one of these evaluation components for a legitimate reason: (1) you must get proper documentation and submit it to the Associate Dean's office of your faculty OR you can submit the McMaster Student Absence Form (MSAF), once per term, to request academic accommodation due to medical or personal situations that last up to 3 days, (2) you must then contact the Instructor in order to find out what, if any, accommodations will be made for the missed evaluation components. See Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work" for details. I am very particular about MSAF use and will follow the rules to the letter.

Typically, your grade for the missed evaluation will be applied to the Final Research Proposal (i.e., if you miss the Research Topic Review, the 8% will be applied to the Research Proposal, making it worth 33% of your final course mark). If you do not complete these two steps within 7 calendar days of the missed component, you will receive a grade of zero for it.

All late assignments will be given a 0 grade. There is no late policy. Assignments must be handed in by the time stated on the assignment.

Grade Appeal Policy:

You will have 7 calendar days from the date when your grade for a particular course evaluation component is released to appeal your grade. If you wish to appeal a grade, you must leave a written note (including your name, McMaster email address, and student ID number) in the Earth Sc 3RD3 drop box, stating the component that you wish to be investigated and justifying why you wish to have the evaluation reviewed. If the written request is found to be insufficiently justified (e.g., simply wanting a higher mark is insufficient), the appeal will not be investigated further.

Academic Integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. The academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

- Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- Improper collaboration in group work.