

GEOL 1410 Natural Disasters and Global Change

Section G80; September-December 2013

Course Syllabus

INSTRUCTOR:

Fawn M. Last office: 348 Wallace Building; Office telephone: (204) 474-8361 (leave a message); Fax: 474-7623; Email: Fawn.Last@umanitoba.ca; office hours: by appointment

Course format/location:

This course will be mainly lectures supplemented by weekly audiovisual programs. Lectures are 6:00 to 9:00 pm on Tuesdays in Room 223 Wallace Building. A course web page is available on D2L.

Course Content/Description:

Humans and nearly all aspects of our societies are ultimately dependent upon geology. What we as humans eat and wear, where we live, how we work, and how we move about are all ultimately dependant on geology.

One problem that emerges with this dependence on and living with geology is that there are many natural geologic processes that can be hazardous to humans. Events such as earthquakes, volcanic eruptions, floods or landslides are not inherently problematic but invariably can become hazardous if humans choose to occupy the land being influenced by these processes. This course focuses on these processes.

The modern investigation of natural disasters and catastrophes is a broad subject encompassing virtually every aspect of the traditional topics of Earth science, geology, geophysics, geochemistry, and hydrology, including many associated scientific and engineering subdisciplines. During this term our investigations and discussions of natural disasters will revolve around two major themes:

- the geoscience of natural hazards, and
- hazard prediction and mitigation.

The course is intended to provide an *overview* of the salient aspects of geologic hazards as they contribute to disasters, some of which are unique to the field, others being shared with allied disciplines such as soil science, engineering geoscience, hydrology, and geochemistry. The ultimate objective of the course is to foster your analytical and critical thinking skills. We will have plenty of facts to learn, but we will always want to go beyond just the bare facts to the societal/environmental implications and interpretations. It must also be emphasized that many of the hazards we will systematically discuss as *separate* processes are actually strongly interconnected. Importantly, this course is not an academic refuge for bolstering GPAs.

Outline and *tentative* schedule of lecture topics:

- *Week 1*: Introduction to Earth system science and geology; Cycles; techniques, data.
- *Week 2*: Techniques, data (continued), and investigative procedures; The Earth's cycles
- *Week 3*: The Shaking Earth: Earthquake processes, hazards, perception, prediction & mitigation
- *Week 4*: The Explosive Earth: Volcanic processes, hazards, prediction & mitigation
- *Week 5* : Water, water, water everywhere; and not a drop to drink: Floods & flood hazards; riverine processes, flood analysis, prediction, mitigation
- *Week 6*: Slipping and sliding: Mass wasting, mass movements & landslides, causes, & prevention
- *Weeks 7*: Sinking, soluble & swelling ground: Subsidence & karst hazards; swelling soils.
- *Weeks 8 & 9*: When water meets land: Coastal hazards; coastal processes; minimizing effects of coastal hazards.
- *Week 10*: It came from space: Meteor impacts
- *Weeks 11 & 12*: Global change: a major paradigm shift in the geological sciences; major processes and geological history of changes; important linkages with geological hazards and disasters.

Textbook:

Keller, E. A., Blodgett, R. H., and Clague, J. J., 2012. Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes (Second Canadian Edition), Pearson-Prentice Hall, Toronto, 439 pages.

Please note that in addition to the print version, the publisher offers an E-book version of this text (see <http://www.coursesmart.com/natural-hazards-earth-processes-as-hazards/edward-a-keller-robert-h-blodgett-john-j/dp/9780135090541>)

Approximately 80% of this text will be assigned during the term.

Grading: Mid-term test: 25% (tentatively October 22)
2 term written projects at 25% each: 50% (see due dates and instructions for projects below)
Final examination: 25% (scheduled by the university)

Grading scale

Letter grade	Percentage range	Description
A+	90 – 100	Exceptional
A	80 – 89	Excellent
B+	75 – 79	Very good
B	70 – 74	Good
C+	65 – 69	Satisfactory
C	60 – 64	Adequate
D	50 – 59	Marginal
F	49 and below	Failure

The last date for voluntary withdrawal from the course without academic penalty is *November 13, 2013*. I am instructed by ROASS policy to advise you to read and acquaint yourself with the academic regulations and policies in the 2013-2014 University Undergraduate Calendar. In particular, be aware of the policies regarding academic dishonesty, including plagiarism and cheating, examination personation, and attendance at class and debarment. In the case of individual assignments and term projects, specific instructions concerning due dates are provided at the start of the term. If you have any questions, ask. **Late assignments and term projects will NOT be accepted.**

ELECTRONIC COMMUNICATION POLICY

University of Manitoba requires that electronic communications involving official communication between University staff and students be conducted using students' official University email accounts. Students are required to activate their official email account and to check it regularly. Electronic communications in this course will follow this policy. Students in the course are expected to check their accounts on a minimum twice-weekly basis. Electronic announcements to the class or to individuals on subjects including rescheduling of events, class cancellation notices, assignment deadline changes, clarifications of assignment questions, and requests for meetings will be emailed to students' official email addresses only. All emailed questions to the instructor on class materials, requests for extensions, and electronic submissions of assignment materials etc. must come from students' official email accounts in order to be addressed or accepted.

The full electronic communication policy can be found at:

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html and information for students on the policy may be found at:

<http://umanitoba.ca/ist/email/studentemailindex.html>

Assignments/Term projects

GEOL 1410 Natural Disasters and Global Change is designed to fulfill the University's "written English"(W) requirement through the submission and evaluation of **two** significant written assignments or term projects. Each of these projects is worth 25% of your total mark; each will be evaluated and graded on the following criteria and weighting:

- i. Annotated bibliography (30%). An annotated bibliography is an alphabetical listing of sources that are important or critical for your research project and that you will likely be using in your paper. Each reference item must be listed in the required reference citation format and includes a short paragraph or several sentences ("annotation") that describe the usefulness of the reference, its contribution and/or importance. The required citation format is outlined on a separate handout. **Be sure to follow this format.** You should consult the University of Manitoba Library (i.e., http://www.umanitoba.ca/libraries/units/dafoe/media/annotated_bibliography.pdf) or other sources for examples and instructions on preparing annotated bibliographies. Most universities have online documents describing annotated bibliographies. Importantly, one of the main objectives of preparing an annotated bibliography is to demonstrate that you have done the required research on your project topic. As

such, it should be as complete as possible. Indeed, often the annotated bibliography list will be longer than the reference list that is actually submitted as part of your paper.

- ii. Quality of writing and presentation (25%). This includes clarity of sentences and paragraphs, organization and coherence of ideas, structuring, style, grammar, punctuation, use of English and use of figures/tables.
- iii. Scientific content and information (20%).
- iv. References and use of references (25%). This includes the scholarly level and soundness of the references, how effective the references are used and cited in the paper, and adherence of correct format for citation and referencing. The REQUIRED reference citation format for both of your projects (including the format for the references in your annotated bibliography) is outlined in a separate handout. **You should NOT use any other referencing format.**

It is expected that your paper is original. If a paper, or any part of a paper, is identified as not being original, and/or not done by the student, the paper may receive a zero. Anything that is not your own thoughts/concepts must be cited explicitly in the text. Every source you use must be cited within the text of the final paper. The University of Manitoba has an exceptional Library system with a large number of quality peer-reviewed scientific journals available both in-house and on-line. Use of non-refereed, non-reviewed sources (including most 'encyclopedias') is generally not acceptable in scientific writing at the university level. **In particular, use of non-refereed on-line sources such as ask.com, about.com, Wikipedia, etc. is not permitted for these projects.**

The topics for the term projects are provided in separate handouts. You should start working on these projects soon; do not wait until the last minute to start the projects because they both demand a considerable amount of research time. If you have not done a university-level term paper or a term project write-up, it is recommended you contact the Writing Tutor Program of the Learning Assistance Centre (www.umanitoba.ca/u1/ac).

Your assignments/projects must be submitted digitally through the course website at D2L. Submission instructions are available on the course website. Do not wait until the last day to submit your paper because the system periodically goes down or there may be technical issues which might result in your paper not being submitted on time. **Late papers are not accepted and will receive a mark of zero.** Required style/format guidelines are posted on your course website and described in a separate handout; please consult these and follow the guidelines closely, particularly with respect to referencing and reference citation format.

BOTH assignments must be completed. Since this is a W-course, you cannot pass the course without passing the written component (i.e., a minimum grade of 25 out of 50 on the assignments must be achieved).

Project Due Dates:

Project 1 Annotated Bibliography: October 8; Project 1 Paper: October 15
Project 2 Annotated Bibliography: November 26; Project 2: December 3