

**Application for General Education and/or Gordon Rule Writing Certification**

- I. A.) Course Number and Title: GLY 1880 Earthquakes, Volcanoes, and Other Hazards
- B.) Credit Hours:   3
- C.) Prerequisites:   none
- D.) Current Classification
1. General Education Code:  B  C  D  H  M  N  P  S  None
  2. Gordon Rule (Writing):  E2  E4  E6  None
  3. Gordon Rule (Math):  M  None

**Requests:**

- II. General Education
- A.) Requested Classification:  B  C  D  H  M  N  P  S
- B.) Effective Date:  Fall  Spring  Summer   2011   (year)
- Or
- 1-time Approval                      (year)
- C.) General Education purpose and learning outcomes for the course? [Detailed attached response requested.]

III. Gordon Rule

- A.) Requested Classification for course  E2  E4  E6
- B.) Writing Requirements:
- 1.) Number of papers, essays, etc. with word count specified.
  - 2.) Due Dates? Returned with feedback dates?
  - 3.) What type of feedback will be provided the student (in reference to writing skill)?  
           Grade            Corrections            Drafts            Other
  - 4.) Assessment
    - a.) Will the written work be evaluated for grammar, punctuation and proper usage of standard written English?

- b.) Will written work be evaluated for an effectiveness, organization, clarity and coherence of writing?
- c.) Will a published rubric be used?

#### IV. Syllabus

Courses that offer students General Education and/or Gordon Rule credit must provide clear and explicit information for the students about the classification and requirements.


A.) For courses with a General Education classification, the syllabus should include:


- Statement of the General Education Purpose of the Course with attention to the General Education Classification requested
- List of assigned General Education Student Learning Outcomes
- List of any other relevant Student Learning Outcomes
- List of required and optional texts
- Weekly course schedule with sufficient detail (e.g. topics, assigned readings, other assignments, due dates)

B.) For courses with Gordon Rule (writing) classification, the syllabus should include:

- A description/list of Gordon Rule expectations for students (word count, page lengths and deadlines for assignments).
- A statement to the effect that students written assignments will be evaluated with respect to grammar, punctuation, and usage of standard written English, as well as clarity, coherence, and organization. Reference rubric.
- A statement indicating that students will receive feedback on written assignments prior to the last class meeting.
- Assessment note to include basis for grading (rubric) and a statement identifying the two components of the grading, letter grade for course and approved completion of the writing portion of the course.

#### V. Submission and Approvals

A.) Submitted by (Signature of Instructor):   
 Date 1-21-2011

B.) Department Approval: 

C.) College Approval: 

D.) Committee Action:  Approved  Denied  Tabled Date \_\_\_\_\_

## General Education purpose and learning outcomes for the course

GLY 1880 is an introductory science course aimed at communicating basic scientific precepts primarily to students who will not be majoring in a science. With that in mind, there are several goals for the course.

- 1) The course provides an overview of the geological sciences as viewed through the lens of natural hazards. This includes teaching both the basics of the behavior of the solid Earth, such as plate tectonics and the rock cycle, as well as other topics of interest in Earth science, such as natural resource management, and the atmosphere and climate change over geologic and human time scales. Because the geological sciences are very interdisciplinary, many other basic elements of the physical sciences (including physics, chemistry, and biology) are introduced and explained.
- 2) The course aims to give the student better understanding of the concepts of risk, hazard, and vulnerability and how they affect them day to day and over the longer term. It aims to give them the tools to better evaluate risks they read about in popular press as well as those they may not be aware of.
- 3) Throughout the course, they learn how to approach topics scientifically, and how to use observations to assemble and test hypotheses. This is reinforced through classroom interaction using clickers (remote control devices which allow real-time interaction through questions whose answers are immediately tabulated) and classroom demonstrations, as well as a required short scientific report utilizing data freely available on the internet. For example, one in-class demonstration involves a simulation of Hawaii's Mt. Kilauea using a mountain made out of Jello. Students predict what will happen upon the injection of "magma" from below, and then get the opportunity to perform the experiment for themselves, and are often surprised by the results. Ideally, this will convey the importance of scientific and critical thinking not only to science, but to the rest of their lives as well.

These overarching goals are approached through lectures that encourage student participation through the use of clickers, which allow for real-time feedback about how the students are learning the material as well as what specifically interests them about the topics. The basic course topics, natural hazards, tend to be topics that students are both interested in and have some basic familiarity with through the popular press. By using these as tools to teach basic scientific concepts, they are able to gain interest in topics they might not otherwise have noticed, while discussion of current events in the news brings the ideas outside of the classroom.

A short summary of these general education goals is included in the course syllabus.

# **GLY 1880: EARTHQUAKES, VOLCANOES, AND OTHER HAZARDS**

**Instructor: Mark Panning**

## **Syllabus Spring 2010**

Lectures: Carleton Auditorium 100

MWF 4<sup>th</sup> period 8 3:00-3:50

### **Contact info:**

Email: [mpanning@ufl.edu](mailto:mpanning@ufl.edu) or through E-Learning

Office: 229 Williamson Hall (next to the Hub)

Office Hours: Monday 12:50-1:40, Wednesday 1:55-2:45

### **Course Objectives (General Education Purpose):**

1. To gain an overview of the physical geological sciences as viewed through the lens of natural hazards.
2. To get a better understanding of the concepts of risk, hazard, and vulnerability and how they affect you both day to day, and over a longer term.
3. To convey the importance of scientific and critical thinking not only to science, but to the rest of your life as well.

### **Grading:**

10% Classroom participation (as measured by clickers... see below)

10% Project assignment

25% Exam 1 – Fri, Feb 12, in class period

25% Exam 2 – Fri, Mar 26, in class period

30% Final Exam – Group 27C, Tue, Apr 27, 12:30-2:30 pm, in Carleton Auditorium

### **Approximate Grading Scale:**

90 or above – A

87-89 – A-

84-86 – B+

80-83 – B

77-79 – B-

74-76 – C+

70-73 – C

67-69 – C-

64-66 – D+

60-63 – D

57-59 – D-

56 or below - E

### **Textbook (required):**

Natural Disasters, 7<sup>th</sup> Edition, P.L. Abbott

Older editions may be used as well, but page numbers will be given in the 7<sup>th</sup> Edition. The test materials will be based on lectures and the 7<sup>th</sup> Edition.

Reading assignments in the Abbott text are announced in lecture. The online syllabus will be updated with these assignments through the course of the semester. The reading assignments are meant to be

supplementary to the class, and material will be included in the lecture that is not necessarily included in the text (and vice-versa).

### **Exams:**

The first two exams will not be cumulative, and will only cover material included in the segment preceding the exam. Specifically, Exam I is expected to cover material in lectures from week I-VI, as well as reading material in Abbott, Ch. 2-4,6-7, while Exam II is expected to cover weeks VII-XI, and reading material in Ch. 5,8-11,13-15. This, like the schedule below, is subject to change.

The final exam will be semi-cumulative. By this I mean that it will focus on material covered since the second exam (expected to include Ch. 1, 12, 16-17), although mastery of some of the basic concepts (such as the risk equation and sources of energy) will be expected, as well as some overview comparisons between the types of hazards discussed in the course.

If there is an unavoidable reason why you cannot be at the scheduled exam, you need to contact me to arrange a make-up exam before the scheduled exam. If you are unable to attend the exam due to illness, I will request a doctor's note. If you are unable to provide this, you will receive a zero for that exam.

### **Project Assignment (and extra credit opportunity):**

In the second half of the semester, you will have the option of doing one of 3 take-home projects, which will take the form of a hazards-related report a few pages in length and will require independent access and assimilation of data available on the internet. In these assignments, you will use the data to evaluate and test hypotheses relating to hazards from flooding, earthquakes, or volcanoes. You will also have the option of doing one extra report in addition to the required assignment. The first assignment will make up 10% of your final grade. If you decide to take advantage of the extra assignment, it will reduce the weight of the lower score from Exams I and II to 15% (rather than 25%). The remaining 10% of your grade will be based upon your score for the assignment.

### **Classroom participation (clickers):**

We will use a Classroom Response System (clickers) in this class to encourage active participation. The 'score' you get from the clickers contributes 10% to your grade but the score *does not depend on the fraction of questions you got right*. The reason for this policy is that the clicker questions are just as much a test on how well I am teaching the subject, as of your ability to absorb the material in class. The clicker questions are designed to help you prepare for questions you'll get in the exams. The clicker score contributes 10% to your final score. For every class where you've answered at least 60% of the questions – right or wrong – you will receive 1 point. The maximum number of points you can receive will be capped at 30. There will be 40 lectures during the semester that include clicker questions (there will be no clicker questions during the 2 in-class exams). *This means you will be able to miss up to 10 of these lectures at no penalty, while each absence above 10 will effectively deduct 1/3 of a point from your final grade.* This should be ample allowance for any absences required due to sickness, athletic traveling, etc., so *there will be no need to approve absences in advance, and barring exceptional circumstances, no makeup points will be given.*

### **How this course satisfies your General Education requirements (Student Learning Outcomes):**

1. While this course focuses on natural hazards, it provides a broad overview of the basic concepts underlying many fields in the geological sciences. Additionally, since the geological sciences are extremely interdisciplinary, we will also cover many important basic concepts of physics, chemistry, and biology.

2. Critical thinking skills will be a strong focus of this course. Many clicker questions and in-class physical demonstrations will focus on formulating and testing hypotheses. We will also repeatedly focus on the use of logical reasoning to evaluate scientific claims such as those presented in the popular press
3. Scientific communication skills will be addressed through the required and optional project assignments. These will allow students to use real data available from the internet to apply critical thinking skills to problems relating to earthquakes, volcanoes, and floods and serve as an introduction to science writing.

### **Other Policies:**

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

I will expect all students to uphold the standards of academic integrity as stated in the Student Honor Code (available through the Dean of students office at <http://www.dso.ufl.edu/sccr/honorcode.php>). In particular, cheating on exams and plagiarism will not be tolerated. This means direct copying of material in your assignments without proper citation.

### **Schedule:**

#### I. Week of Jan 4

Jan. 4. No class yet

Jan. 6. Introduction to the course

Jan. 8. Introduction to Hazards

#### II. Week of Jan 11

Jan. 11. Hazards need energy: How much, what kind, and from where?

Jan. 13. Energy II

Jan. 15. Plate Tectonics: How the Earth gets rid of its calories

#### III. Week of Jan 18

Jan. 18. MLK day – no class

Jan. 20. Earthquakes, plate tectonics, and the landscape

Jan. 22. Seismic waves and seismograms

#### IV. Week of Jan 25

Jan. 25. Magnitude and intensity: The largest earthquakes

Jan. 27. Quantifying risk and hazard

Jan. 29. Probabilities and predictions

#### V. Week of Feb 1

Feb. 1. The San Andreas Fault I

Feb. 3. The San Andreas Fault II

Feb. 5. Global seismicity

#### VI. Week of Feb 8

Feb. 8. Earthquake engineering

Feb. 10. Exam review

Feb. 12. Exam I

VII. Week of Feb 15

- Feb. 15. Magma generation in the Earth
- Feb. 17. Introduction to volcanic hazards
- Feb. 19. Plinian eruption columns and pyroclastic flows

VIII. Week of Feb 22

- Feb. 22. Spreading-center and hotspot volcanism (add in Jelloea demo!)
- Feb. 24. Subduction volcanoes: Ruiz, Pinatubo, and the Pacific Northwest
- Feb. 26. Fire

IX. Week of Mar 1

- Mar. 1. Floods I
- Mar. 3. Floods II
- Mar. 5. Tsunami

BREAK WEEK

X. Week of Mar 15

- Mar. 15. Weather & tornadoes
- Mar. 17. Hurricanes, typhoons
- Mar. 19. Beach erosion

XI. Week of Mar 22

- Mar. 22. Landslides/Avalanche
- Mar. 24. Exam review
- Mar. 26. Exam 2

XII. Week of Mar 29

- Mar. 29. Population growth
- Mar. 31. Natural Resources/Peak Oil
- Apr. 2. Earth's habitability

XIII. Week of Apr 5

- Apr. 5. Earth's habitability & climate change
- Apr. 7. Ice ages
- Apr. 9. Global Warming: What is it, and are we the cause?

XIV. Week of Apr 12

- Apr. 12. Global Warming: What can we do about it?
- Apr. 14. Impacts!
- Apr. 16. Life and Death in the Cosmic Shooting Gallery

XV. Week of Apr 19

- Apr. 19. Protecting ourselves from the fate of the Dinosaurs
- Apr. 21. Last class: final exam review

*This schedule is subject to change. Lecture notes will be available via E-Learning.*