GEO 3030-090 Course Syllabus
(ONLINE SYLLABUS)
Fall 2017

GEO-3030-090: LIVING WITH EARTHQUAKES AND VOLCANOES
A UOnline course, 3 credits, no pre-requisites, satisfies UU International Requirement and UU Science Foundation Requirement

Syllabus Topics:
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This course, Living with Earthquakes and Volcanoes, explores two of Earth’s most spectacular phenomena from a variety of perspectives: physical sciences (basic and applied), social sciences, and engineering. To understand where and why earthquakes and volcanic eruptions occur, we use the geological concepts of plate tectonics, deep time, and the persistence of processes and principles. Earthquakes and volcanic eruptions are a global concern, requiring collaborative international prediction programs and remediation responses; this course is intended to increase individual awareness of these international implications and attendant responsibilities. The global patterns of earthquakes and volcanic eruptions place burdens on a few countries (e.g., Japan, Indonesia, China), but many countries need to find their own answers to the same question: How do local constraints (culture, infrastructure, government, economics) affect the feasibility of applying scientific and engineering solutions to hazard reduction?

Instructor:
Dr. Erich U. Petersen, Office: 319 Sutton, Office hours: flexible, please contact me for an appointment using Mail Tool “Inbox” within the CANVAS course. Please use the CANVAS Inbox email tool to communicate about strictly personal issues and to receive a quick, timely response. Use DISCUSSION for all other questions (see below).

Textbook:
The primary readings for this course are PDF documents. Each document has a backup web page (html) for those that prefer that format. The course does not use paper-based texts, but you may download/print any PDF documents for your own use. The text was created by Drs. Richard Jarrard and Susan Halgedahl ("Living with Earthquakes" & "Living with Volcanoes") and has been updated by Dr. Erich U. Petersen. ‘ebook’ versions of the same material are available on Amazon: ‘Living with Earthquakes’ & ‘Living with Volcanoes’. Each is $3, with profits going to charity, and each is readable on Kindle Fire, iPad, PC, or Mac. Updates since 2011 are not included in the ‘ebook’.
Course structure:

The course consists of 15 weekly (Mon-Sun) modules. A typical module includes about 15 online pages of text and figures, a short online quiz, and one or more slideshows. About half of the modules have an associated homework assignment. The modules are:

- Introduction and Overview
- A Multiple Perspectives Approach to E&V
- Minerals, Rocks, & Deep Time
- Dynamic Earth: Plate Tectonics
- Volcanism: Kinds of Eruptions
- Volcanoes: Where & Why?
- Living with Volcanoes
- Review & Midterm Exam
- Stress, Strain, and Seismic Waves
- Earthquakes: Where and Why?
- Earthquakes and People: Earthquake Hazards
- Living with Earthquakes: Some Examples
- Earthquake Prediction: 3 Countries, 3 Approaches
- Tsunami: Multinational Impact & Response
- Review & Final Exam

Everything within these modules, including every link, is required unless it is labeled as “optional”.

Enter the list of 15 modules either by clicking the 'Modules' tab along the left margin or 'enter weekly modules' link on the 'Home page' tab. The schedule of due dates is given within each individual module, in the course’s Calendar tool (red bar above), and on the bottom of this Syllabus. Due dates are ending dates, but quizzes are open for five days and homework assignments are open for seven days. You are strongly encouraged to submit well before the due date, to leave contingency time in case of issues. No "make-up" quizzes are available. The lowest quiz grade will be dropped from the calculation of the final grade.

Because this class is 3 credit hours, students are expected to devote about 6 hours per week to it. In a typical week, you might spend 3 hours on the module readings, 1 hour on the homework assignment, 30 minutes on slideshows, 20 minutes on the quiz, 10 minutes on Discussions messages, and 1-3 hours reviewing what you've learned.

Requirements and Outcomes:

**General Education Requirement**
- This course meets the Science Foundation (SF) Requirement
- This course addresses the following Essential Learning Outcomes: Inquiry and Analysis, Civic Knowledge and Engagement – local and global

**Bachelor Degree Requirement**
- This course meets the International (IR) Requirement
- This course addresses the following Essential Learning Outcomes: Quantitative Literacy, and Intercultural Knowledge and Competence

Quizzes:

Almost every module has an associated quiz. Quizzes are short (7-11 multiple-choice questions) and brief (15-minute maximum). It is recommended that students take each quiz right after reading the module. The quizzes have two purposes: to encourage the student to keep up on module readings, and to familiarize the student with the kinds of questions that are likely to be encountered on the exams.
To take a quiz, click the quiz link within that week's module, then click 'Take the Quiz'. Each quiz is only available to be taken during the period Monday 12:00 AM to Friday 11:00 PM of the week for that weekly module (reminders of this quiz period are posted within each module's home page, in Calendar, and as an announcement when you login to CANVAS). Each quiz 'time-window' is rigid: 115 hours! If you do miss one quiz or do poorly on one quiz, don't worry: each quiz is worth only about 1% of your final grade. Take every weekly quiz, to establish a pattern of steady point progress; almost nobody who consistently skips the quizzes does well in this course. It is recommended that you do not wait until the last available minutes to take a quiz, in case you encounter technical problems such as a dropped connection. The "15-minute maximum" is an absolute cutoff, so be sure to submit before then. There are no "make-up" quizzes under any circumstances, as an individual quiz very rarely contributes to raising the course grade. To maximize your cumulative points consider taking the quiz even if you have not completed the reading. Students will not be able to view the correct answers if they have not attempted the quiz.

Quizzes are graded immediately and your score is available in 'Grades'. On Saturday morning following the close of a quiz, the quiz can be reopened so that you may see which questions you may have missed. **The quiz will not be openable for anyone who has not submitted the quiz during the scheduled time window.** *i.e. If you skip the quiz, you will not be able to 'reopen' the quiz to see the correct answers.*

Homework assignments:

It is recommended that you print this section on homework assignments, so you can refer to it easily while you are doing your first homework assignment.

Homework assignments are short (commonly <1 hour) but abundant, and they are ~24% of the total course grade. Seven of the 15 weekly modules include a homework assignment, usually in the form of two adjacent links. The first is a 1-3 pages PDF document, which will open when you click the link. Print this homework assignment page(s).

Do each homework assignment offline, using a pencil and your paper copy to answer questions. This is your personal copy, not to be turned in. To submit your homework assignment, go back into this week's module and click on the next 'homework' link, which will have a name like 'Submit M# Hw'. Then answer the questions, which will be almost, but not exactly, the same as those on your homework; slight differences are just for automatic computer grading. A small amount of variation in numerical answers is provided in the automatic computer grading. However, you must strive to be as accurate and precise as possible in working out all calculations.

Every homework assignment is due at 11:00 PM on the Sunday when that module ends; you can see that "due date" either next to the 'Submit M# Hw' link or on your course Calendar (top of course page). After 11:00 PM on Sunday each homework assignment closes, and the link is no longer operable. A homework assignment will not be openable for anyone who has not submitted the assignment.

If exceptional circumstances prevent you from submitting your homework by the 11:00 PM Sunday cut-off deadline, use the “In box” link to send both your excuse and your late homework answers to "Erich Petersen", ASAP! If I agree that your late homework assignment should be graded, I will do so by hand and enter the grade into the grade sheet.

Homework assignments must be done individually, not as a team. Some courses allow team-produced homework assignments as an exercise in collaborative team building, but this is not one of them. Copied homework assignments, and the one from which they were copied, will receive zero credit.

Two homework assignments are based on 50-minute videos that can be viewed by clicking on the 'movie for homework' link within the weekly module.

Homework assignments are graded immediately and your score is available in 'Grades'. On Monday morning following the close of a homework assignment, the assignment can be reopened so that you may see which questions you may have missed. **If you skip the homework assignment, you will not be able to "open" the link.**
Quakewatch Project:

An 8-week, real-time semester ‘Quakewatch’ project on global seismic activity (Earthquakes Through Time) constitutes ~13% of the total course grade. Students collect earthquake location and magnitude information weekly, plot their results on a map and write up a short report summarizing the results, observations and interpretations. Students submit an "in-progress" map for an interim map check (CANVAS link in Quakewatch Module) by Thursday, September 21, 11:00 PM. The final report (Submit as ‘.pdf’ file using CANVAS Link) is due by Thursday, November 16, 2017, at 11:00 PM. Late submissions are penalized 20% per calendar day. Grades for the project should be available about two weeks after the report is due.

Resources and skill sets for success: It will be essential that you use a laptop or university computer to collect and tabulate your data, and to write / assemble your report! Tablets and phones are too limited. Among the tasks you will be called upon to do are: a) use the Internet to access the earthquake data b) use EXCEL spreadsheets to organize these data, and to make graphs and figures that illustrate relationships within the tabulated data and that display the data on maps of the earth c) use WORD to write your report, d) create and combine ‘.pdf’ (using ACROBAT PRO) files for submission of your reports through CANVAS. Additional skills may include familiarity with PowerPoint. If any of these skills are unfamiliar to you, review the short explanations that are provided, ask a fellow student (in person or through CANVAS discussion). ALL these skills will be invaluable, if not crucial, for success in your undergraduate program!

Exams:

The two exams (Midterm and Final) total ~50% of the total course grade. Both exams are normally taken on campus or at one of the UU extension sites (Sandy, Murray, Bountiful). These exams are proctored by the UOnline staff. You should register online with UOnline for your first exam by September 23, and for your second exam by November 18. Use the SCHEDULE EXAM link on the course webpage. You cannot simply show up, because the testing center(s) are administering exams for multiple courses in the same room at the same time, and they have a limited number of seats available for those who are on their list. You will select a specific time slot- be on time. Bring your student ID card, as you will need to show it to access your exam. Bring your student ID card, as you will need it to be admitted to the testing center. Be sure to check that you are working on the correct exam. No grade will be given for taking an incorrect exam or for missing the exam altogether. For further details on taking and registering for UOnline exams, click on the ‘Schedule Exams’ link. Students who live more than 20 miles from the university and its extension sites are considered out-of-area and may take their exams locally from an approved proctor. For details on arranging this, click on the 'Schedule Exams' link or see the Student Help Guide at the UOnline main page.

The hour exam may be taken on any day Wednesday-Saturday, October 18 - October 21. This hour exam covers topics discussed during the first 7 weeks (the first 7 modules). Note that this year Hour Exam week follows Fall Break. Please note that the testing center closes early on Saturdays.

The final exam may be taken on any day Wednesday-Saturday, December 6-9. The Final exam is comprehensive, but it concentrates on material covered during the second half of the course (about one-third modules 1-7 and two-thirds modules 9-15). Note that Final Exam week is scheduled during the last week of classes.

Both exams are ‘closed-book’; no notes, recorders, headphones, calculators, or getting someone else to do the problems for you.

If you cannot take one of the exams because of medical or outside-job reasons, you may be allowed to take a makeup exam, but only if you contact instructor via “Inbox” email to Erich Petersen (not phone) before exam week and obtain approval to take the makeup. Makeup exams are given by arrangement. Exam grades may be available as early as the Monday following exam week (in ‘Grades' link), but neither a physical copy nor an electronic version of the exam or answer sheet will be returned to the student. You may make an appointment to view your exam and ask questions.
Announcements and Discussion:

From time to time important course information needs to be communicated to all students. These will appear in the Announcement Link and you will be alerted each time a new announcement is posted. Be sure to read all announcements.

Discussion: All non-personal communications must be directed to this destination. Students are urged to collaborate, offering solutions to questions, discussion of topics, etc. i.e. if you have a question, it is likely that others have the same question, so put it out there and allow everyone to benefit. If you see a question to which you can contribute a response, jump in and do so. If you have a comment to a posted response, jump in and comment.

Grading:

Final grades are based on total points, scaled on a curve. Points are given for exams, homework assignments, and quizzes, as follows:

<table>
<thead>
<tr>
<th>Kind</th>
<th>Number given</th>
<th>Max. points for each</th>
<th>Total possible points</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>11</td>
<td>4.0-5.5</td>
<td>59</td>
<td>13</td>
</tr>
<tr>
<td>Homework assignments</td>
<td>7</td>
<td>14.4-16.5</td>
<td>109.5</td>
<td>24</td>
</tr>
<tr>
<td>Semester project</td>
<td>1</td>
<td>50</td>
<td>50</td>
<td>13</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>22</td>
</tr>
<tr>
<td>Final exam</td>
<td>1</td>
<td>125</td>
<td>125</td>
<td>28</td>
</tr>
<tr>
<td>Course</td>
<td></td>
<td>443.5</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Letter grades are assigned after converting your total points to "total course percentage", then comparing each percentage to ranges for individual letter grades. You can check on your progress to-date at any time by looking in the 'Grades' tab; Below are the approximate conversions from percentage to letter grades in past course offerings:

>86% (A&A-), 86-75% (B+,B,B-), 75-63% (C+,C,C-), 63-49% (D+,D,D1), <49% (E),
>82% (A-&A), 82-65% (B+,B,B-), 65-42% (C+,C,C-), 42-38% (D+,D,D-), <38% (E)
>81% (A-&A), 81-70% (B+,B,B-), 70-50% (C+,C,C-), 50-37% (D+,D,D-), <37% (E)

These are only approximate guidelines, and I cannot provide more detailed cutoffs in advance, because I grade on a curve. This means that I revise grade cutoffs each semester based on actual student results. For example, I might move a cutoff slightly so that a person does not miss a grade by a hair, or I might lower all cutoffs if an exam was more difficult than I had expected.

A Caution: Interpretation of "Total Course Percentage" in grade display: Early in the semester the percentages may sway drastically from week to week because both individual high and low grades strongly affect the average in opposite directions. As more points are accumulated during the semester, the closer the values approximate your likely eventual course percentage grade. **NOTE: the lowest Quiz grade will be dropped from the final calculation.** A final independent % calculation will be carried out before letter grades are assigned. It is likely that the final % calculation may differ from that shown in CANVAS by a small amount. Warning: Interim average grades shown in CANVAS in the shaded right-hand most columns are not reliable and cannot be used to judge what grade you have earned thus far or will earn by the end of the semester.

Tips for success in this class:

Because this class is 3 credit hours, students are expected to devote about 6 hours per week to it. In a typical week, you might spend 3 hours on the module readings, 1 hour on the homework assignments, 30 minutes on slideshows, 20 minutes on the quiz, 10 minutes on Discussions messages, and 1-3 hours reviewing what you've
learned. The first week is light on module readings and other work, because of the temporary workload of learning CANVAS and the online course structure.

Online courses make different demands on the student than do lecture courses. Surveys of students have shown that the two best predictors of student success in online courses are self-motivation and time management. These two skills are even more important in online courses than in lecture courses because verbal cues (nagging) by the instructor are lacking: “here is this week's homework assignment”; “don't forget, homework assignments are due tomorrow!”; “OK, let's start this class by taking the weekly quiz”. Time management is probably a key reason for you taking this course: you want the flexibility of setting your own schedule for when you work on it. Flexibility can be a pitfall, however, so do set a schedule for yourself, considering the two essential limiting conditions:

- The quiz for each weekly module must be taken between Monday and 11:00 PM Friday, and you will want to read the module chapter and view the slideshows (at least) before taking the quiz. Nevertheless, it is to your advantage to take the quiz even if you have not completed the reading because you may earn a few points.

- The homework assignments for each weekly module should be turned in before 11:00 PM Sunday, the close of the module week. It is strongly recommended that you avoid aggravation and frustration by doing the homework at least a day ahead of this Sunday deadline. For example, if you have a question, it may take several hours for the instructor to respond, and lack of instructor response is not an excuse for failing to submit a homework assignment on time. Also, there is a small chance of temporary server problems interfering with your downloading or turning in a homework assignment.

Take your time and methodically answer the questions on the quizzes and homework assignments - a slip of the mouse or finger can be disastrous. **Important admonition:** Please do not wait until the last hour to take a quiz, submit a homework assignment or take an exam. In the first two cases, you lose the opportunity to obtain help if you run into difficulties. There is a strong tendency that CANVAS and/or the campus computing systems may fail (disconnect, etc.) during a “last minute” rush to do the assignment (This has happened to someone every time the course has been offered). The deadline will not be extended. The assignment will be graded “as is”. Plan your weekly class schedule to complete your assignments for this course early in the week.

The key to success in this course is **persistence.** About 7% of students are likely to fail this course or get a D, nearly always because they stopped trying (dropped out unofficially) and did not officially withdraw (please do so). It is strongly recommended that you submit every quiz and homework assignment, even if you cannot do well on every one. For example, a student who gets an ‘A’ on 5 homework assignments and skips 2 homework assignments will receive a lower total homework score than a student who gets a ‘B’ on all 7 homework assignments. Even though a quiz is worth ~1% of your grade, missing several may make a difference in borderline situations. **Neither quizzes nor homework assignments can be made up.** Extra credit assignments are not available. Ultimately, the final grade is based on total points accumulated during the semester.

Online courses typically require substantial reading. Many students manage to pass lecture courses without doing the required readings, but that tactic is hopeless in an online course. If you hate to read, this course is not for you. Reading assignments have been shaved to the bone: the online chapter modules contain all the required reading material.

**ADA:**

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to plan for accommodations.
Student responsibilities:

All students are expected to maintain professional behavior in the online classroom setting, per the Student Code (spelled out in the Student Handbook). Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. Per Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible student behaviors, and I will do so, beginning with warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

If you see something that is incorrect in the instructions or a link that is not working, please alert the instructor via CANVAS “Inbox” email. Your timely feedback will be greatly appreciated by your classmates and instructor.

Accommodations Policy:

Some of the course module writings in this course may include material that conflicts with the core beliefs of some students. Please review the syllabus carefully to see if the course is one that you are committed to taking. If you have a concern, please discuss it with me at your earliest convenience.

Enjoy
Living with Earthquakes and Volcanoes
Lessons Learned
For Fall 2017

1. Best if students have to sign up for an exam slot.

2. Add:
   * No make-up assignments for any reason (except medical). Rarely contributes to raising the course grade.
   * No make-up quiz (worth ~1% of your course grade).
   * It is always worth trying all quizzes, even if you did not study the material, so that you can come back and look at the answers.