

# Earthquake and Volcanoes – 01:460:201

## Sample Syllabus

**Instructor:** Dr. Lauren Neitzke Adamo  
Dep. of Earth and Planetary Sciences  
Contact: [lauren.adamo@rutgers.edu](mailto:lauren.adamo@rutgers.edu)  
Office hours: by appointment ONLY

**Lectures:** This is an ONLINE class. There will be no formal lectures; keeping up with the material is entirely your responsibility.

**Exams:** Exams will be handled in person. Dates/Times will be emailed to you and posted on Sakai. Please mark your calendars!

### Course Webpage:

Sakai (<https://sakai.rutgers.edu>) will be used for: Announcements, Assignments, Chat room, Gradebook, Schedule, Class Email

eCollege will be used for: Resources, Reading material  
<http://onlinelearning.rutgers.edu/ecollege-student-login>

### Course Objectives:

This General Education course will survey basic knowledge about earthquakes, volcanic eruptions, and how these natural processes affect human civilization. Some very general objectives, not necessarily in the order of their importance, are listed below.

- 1) Learn about the hazards earthquakes and volcanoes pose to human civilization, and ways we can mitigate them.
- 2) Learn basic facts about volcanoes, earthquakes, and their connection to large scale processes within the Earth.
- 3) Develop a basic familiarity with the modern understanding of how our planet functions.

Besides the specific objectives above, this class seeks to familiarize students with the broad concepts of scientific inquiry:

- what constitutes knowledge,
- how is it acquired,
- how is it verified,
- how is it applied.

### Required Texts:

**How Volcanoes Work** by Vic Camp

This is a free online manual and can be found at:

[http://www.geology.sdsu.edu/how\\_volcanoes\\_work/](http://www.geology.sdsu.edu/how_volcanoes_work/)

**Earthquakes** by Bruce Bolt (5<sup>th</sup> Edition, W.H. Freeman)

This book can be purchased at the Rutgers University Bookstore or online at any site that sells textbooks (amazon, barnes and noble, etc.)

**Grading Policy:**

Your final grade will be based on a total of 100 points. You will be given 2 written hour-long examinations; all are objective in nature (multiple-choice, true/false, matching), and four written assignments. The examinations are not cumulative; each covers approximately 1/2 of the course material.

Four written assignments (homework) will use what you have learned about Earthquakes and Volcanoes and several Internet resource sites to answer and complete several tasks. These projects will be submitted through the *Assignments 2* feature on the SAKAI website, and are due at 11:59 pm on the scheduled due date.

**Total Points: 100**

- Volcanoes Exam: 25 points
- Earthquakes Exam: 25 points
- Volcanoes HW1: 10 points
- Volcanoes HW2: 15 points
- Earthquakes HW1: 10 points
- Earthquakes HW2: 15 points

**Course Projects:****Project 1-** Volcanoes Homework Assignment 1

Due at 11:59 pm in the Sakai (Assignments 2 tab) on **Friday September 25<sup>th</sup>, 2015**

**Project 2-** Volcanoes Homework Assignment 2

Due at 11:59 pm in the Sakai (Assignments 2 tab) on **Friday October 16<sup>th</sup>, 2015**

**Project 3-** Earthquakes Homework Assignment 1

Due at 11:59 pm in the Sakai (Assignments 2 tab) on **Friday November 13<sup>th</sup>, 2015**

**Project 4-** Earthquakes Homework Assignment 2

Due at 11:59 pm in the Sakai (Assignments 2 tab) on **Tuesday December 1<sup>th</sup>, 2015**

**Exams:****Exam 1-** Volcanoes

Scheduled during the week of **October 19<sup>th</sup>-23<sup>rd</sup>, 2015**, date to be announced.

**Exam 2-** Earthquakes

Scheduled during the finals week, date to be announced.

## **Plagiarism is a serious offense.**

### **Academic Misconduct & Ethics Policy:**

**Plagiarism can be defined as taking someone else's work and presenting it as your own, whether through outright copying of papers or websites, referencing source material incorrectly or *not referencing at all*.**

I expect all of your assignments to be your own work and to reflect your personal views and experiences. If I discover that you have plagiarized, I will (as required by Rutgers University policy, here: <http://academicintegrity.rutgers.edu>) report it to the appropriate University personnel, give you a failing grade on the assignment, and may fail you for the semester.

Please consult the Rutgers University Undergraduate Catalog for information regarding ethics, conduct, and drop dates.

### **Course Readings and Schedule:**

Since this an online course, you will be responsible for reading and learning the online material on your own schedule. You will be responsible for all of the topics listed below, and the order and the timeline of when you cover this material is up to you. However, for success in this class, it is important to keep up with the course readings and to not leave everything until the last minute.

The readings are broken up by the weeks/dates of the course and are separated into Online Course Website Reading Material, the Earthquakes Textbook, and the free online "How Volcanoes Work" Web Manual. The following is an outline you should follow for the week-to-week readings in this course.

### **Schedule of study topics (suggested) and homework assignments (required).**

The schedule below lists weekly "themes" and related sections of the course website and the reading materials. In the online reading materials (eCollege and Vic Camp's textbook) you are responsible for reading the main page and the first-order links within it. These are the *minimum* requirements that will get you through the exams. Links from suggested reading materials lead to large online resources, do explore them following you own curiosity.

### **IF YOU FOUND A DEAD LINK ON A PAGE – PLEASE ALERT ME.**

### **SEPTEMBER**

#### **1- Week of September 1<sup>th</sup>**

- Establish connections to course websites (eCollege and Sakai). Review the syllabus, familiarize yourself with course schedule.
- Identify and address any issues with permissions, connections and access.

## **2- Week of September 7<sup>th</sup>**

### Course Reading-

- Course Website (eCollege)
  - Basics of Earth Science- Earth Structure
  - Basics of Earth Science- Plate Tectonics

## **3- Week of September 14<sup>th</sup>**

- THEMES
  - volcano types
  - classification of volcanic eruptions
  - what comes out of volcanoes

### Course Readings-

- Course Website (eCollege) sections within “Volcanoes” unit
  - Basics
  - Volcano Types
  - Eruptions I
  - Eruptions II
- Online textbook “How volcanoes work” read these chapters
  - Eruption types
  - Eruption products
  - Volcano Landforms

## **4- Week of September 21<sup>th</sup>**

**\*\*Homework Assignment 1 due at 11:59 pm on Friday September 25<sup>th</sup>, 2015\*\***

- THEMES
  - What makes volcanoes erupt
  - Where do volcanoes form, and why

### Course Readings-

- Course Website (eCollege) sections within “Volcanoes” unit
  - Eruptions III
  - Settings I
  - Settings II
  - Settings III
- Online textbook “How volcanoes work” read these chapters
  - Eruption types
  - Eruption Dynamics

## **5- Week of September 28<sup>th</sup>**

- THEMES
  - Controls on types of volcanic eruptions
  - Volcanoes and Humans: Historical Eruptions

### Course Readings-

- Course Website (eCollege) sections within “Volcanoes” unit
  - Settings IV
  - Mt. St. Helens
  - Mount Pelee
  - Krakatau
  - Santorini
- Online textbook “How volcanoes work” read these chapters
  - Historical Eruptions

## **OCTOBER**

### **6- Week of October 5<sup>th</sup>**

- THEMES
  - Volcanoes and Humans: Monitoring Volcanic Activity
  - Volcanoes and Humans: Hazards, Risks, Mitigation

#### Course Readings-

- Course Website (eCollege) sections within “Volcanoes” unit
  - Monitoring I
  - Monitoring II
  - Hazards
  - Risks

### **7- Week of October 12<sup>th</sup>**

**\*\*Homework Assignment 2 due at 11:59 pm on Friday October 16<sup>th</sup>, 2015\*\***

- THEMES
  - Volcanoes and Climate
  - Volcanoes and Life on Earth
  - Volcanoes on other planets

#### Course Readings-

- Course website (eCollege) sections within “Volcanoes” unit
  - Climate effects
  - Deep Sea Volcanoes
  - Other Planets
- Online textbook “How volcanoes work” read these chapters
  - Planetary Volcanism

### **8- Week of October 19<sup>th</sup> Exam 1 MUST be taken in person, date and location TBA**

Review and question/answer sessions in SAKAI chat room will be scheduled prior to the exam.

### **9- Week of October 26<sup>th</sup>**

- THEMES
  - basics of earthquake science
  - history of ideas about earthquakes and their causes

- how to detect, locate and measure earthquakes

Course Reading-

- Course Website (eCollege) sections within the “Earthquakes” unit
  - Definitions
  - Mythology
  - Elastic rebound
  - Detection
  - Locating Earthquakes
  - Earthquake Size
- Earthquake textbook by Bolt
  - Chapters 2, 5, 6, 7

**NOVEMBER**

**10- Week of November 2<sup>nd</sup>**

- THEMES
  - Faults, and how they behave in an earthquake
  - Where earthquake do and do not happen, and why

Course Readings-

- Course Website (eCollege) sections within “Earthquakes” unit
  - Faults
  - Where and Why
  - Fault Zones
  - Focal Sphere
  - Rupture
  - Big and Small
- Earthquake textbook by Bolt
  - Chapters 3,4,8

**11- Week of November 9<sup>th</sup>**

**\*\*Homework Assignment 3 due at 11:59 pm on Friday November 13<sup>th</sup>, 2015\*\***

- THEMES
  - Learning about the Earth using earthquakes
  - Some notable earthquakes

Course Readings-

- Course Website (eCollege) sections within “Earthquakes” unit
  - Using Earthquake Information I
  - Using Earthquake Information II
  - Historic Earthquakes
- Earthquake textbook by Bolt
  - Chapters 3,4,8

**12- Week of November 16<sup>th</sup>**

- THEMES
  - Earthquake hazards, risks and mitigation

- Earthquake forecast and prediction

Course Readings-

- Course Website (eCollege) sections within “Earthquakes” unit
  - Earthquake hazards
  - Seismic Risk
  - Earthquake Forecast
  - Earthquake prediction
  - Measuring
- Earthquake textbook by Bolt
  - Chapters 9 through 12

**13- Week of November 23<sup>rd</sup> – Thanksgiving**

**14- Week of November 30<sup>th</sup>**

**\*\*Homework Assignment 4 due at 11:59 pm on Tuesday December 1<sup>th</sup>, 2015\*\***

- THEMES
  - Case studies of recent earthquake disasters

Course Readings-

- Course Website (eCollege) sections within “Earthquakes” unit
  - Sumatra Earthquake
  - Sichuan Earthquake
  - Haiti Earthquake
  - 2011 Tohoku Earthquake
  - 1906 San Francisco Earthquake
  - 2005 Kashmir Earthquake

**15- Week of December 7<sup>th</sup> – Last week of classes**

**Exam 2- Will be held during Finals Weeks, the date and time will be announced at a later date.**