



# **GEOL105: Geological Hazards and their Human Impacts**

Credits: 3

## **Instructor Information**

Instructor name: Adam Wallace

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Office location: 101D Penny Hall

Student hours/Office hours: TBD

Special contact instructions:

You have the option of joining lecture and office hours over Zoom. Please use the following Zoom link and passcode throughout the semester.

<https://udel.zoom.us/j/6882714204>

Password: GEOL105

## **Course Description**

### **Description**

Welcome to GEOL105: Geological Hazards and Their Human Impact

GEOL105 seeks to equip you with the background necessary to understand the geological causes of the natural hazards that make headlines. We begin with an overview of Earth systems and the theory of Plate Tectonics. Next, we focus in greater detail on geologic hazards resulting directly from plate movements: earthquakes, tsunamis, and volcanoes. Then, we will study geologic hazards that originate from surface processes, affecting soils, slopes, rivers, and coasts. Most of these hazards operate at a local or regional scale. Our study will conclude with hazards that affect Earth systems on a potentially global scale: climate change and asteroid impacts.

An important theme of GEOL105 is that although geological hazards are usually unavoidable, they need not always result in disaster. When we understand the geologic processes involved, we are better able to evaluate risk and thus make effective plans and policies that mitigate damage to human populations.

### **Course Delivery**

This is an asynchronous online course, delivered through the Canvas Learning Management System.

## **Learning Outcomes**

1. Describe Earth's internal structure and dynamics and how explain how geologic hazards (i.e., earthquakes, landslides, volcanic eruptions, climate change, tsunamis, flooding, asteroid impacts, etc.) relate to forces both internal and external to Earth.

2. Apply acquired knowledge of Earth's systems (i.e., the geosphere, biosphere, cryosphere, hydrosphere, and atmosphere) to assess the individual and societal risks associated with geological hazards.
3. Use scientific knowledge to interpret current events and news articles related to geologic hazards such as climate change.
4. Be familiar with the wide array of career paths available to students in the Earth Sciences.

## Learning Assessment

### Breakdown

The final course grade will be calculated using the following components:

Course Component	Percentage of Total
<b>Graded Discussions</b>	10%
<b>Projects</b>	10%
<b>Online Quizzes</b>	15%
<b>Reading Assessments</b>	25%
<b>Exams</b>	40%
<b>Poll Everywhere Participation</b>	5% (Extra Credit)

### Graded Discussions

Our Canvas site will host two types of Discussions:

- (1) Graded Discussions (4-5 throughout the semester, graded): a content-specific thought question or exploration relevant to the current topic(s). When the Discussion prompt is posted, you should respond by the first date provided in the prompt (discussion due date). You should respond to at least one other student's post by the second date provided in the prompt (discussion availability date). Your original response and your engagement with your peers will earn points per the Discussion Rubric.
- (2) Muddiest Point Discussions (approximately one per module, ungraded): an open forum where you can post your "muddiest point" and get the help you need from both myself and your classmates.

### In-Class Projects

During the semester, I will assign up to 5 brief "research" projects to help you explore key concepts online in an interactive way. These assignments are meant to be completed during class. I would prefer and encourage that you work on these projects in small groups, but I recognize that our online format makes group work very challenging for some folks and will accept individually completed projects. Details, instructions, and deadlines will be explained with each project.

## Online Quizzes

Quizzes become available on Canvas at a specific date. All online quizzes are open-book and will cover 1-2 modules. You may take each quiz 3 times and only your best score will be recorded. Quizzes will close on the last day of the exam window on which the subject matter is being assessed (ex: Quizzes 1 & 2 will close on the last day you can take Exam 1). No extensions will be granted.

## Reading Assessments

Reading assessments will be posted on Canvas as we begin a new chapter or topic. You may take each reading assessment as many times as you like until its due date -- only your highest score will be recorded -- but you will likely see different questions each time you load the assessment. Reading assessments will open as we begin each module. They will close on the last day of the exam window on which the subject matter is being assessed (ex: Reading Assessments 1/2/3 all close on the last day of Exam 1); no extensions. I recommend you take the Reading Assessment once as you are actively working through the material, and then again as you are prepping for the exam.