

After completing the Orientation Overview exercises, you now know what this course is going to be about. You know what the course is going to cover.

Physical Geology 1 is a fundamental introductory overview course to the science of geology. The course includes introductions to

- earthquakes (seismology)
- volcanoes
- fossils (paleontology)
- the formation of mountains and valleys
- oceanography and marine geology
- landslides
- weathering and erosion
- hydrology
  - rivers
  - glaciers
  - groundwater
- caves (speleology)
- plate tectonics
- the geology of other planets (extra terrestrial geology)
- ice ages
- the earth's magnetic field (geomagnetism)
- deserts
- geologic time (historical geology)
- rocks (petrology)
- landforms (geomorphology)
- environmental geology (living with, and planning for, geologic change)
- natural resources (energy resources and/or mineral resources)
- etc.

Geology 1 introduces all these topics and the student has the opportunity to learn the fundamental basics of these core geologic subjects and areas. Because there are so many topics, however, there is not time to delve into each area in depth or detail. This is the introductory course for geology as a science, but this course is not the entire geology degree.

After taking this course, you can take entire courses in Volcanoes, or courses in Earthquakes, or entire courses in Glaciers and Ice Age and/or Climate Change, or entire courses in Plate Tectonics or Fossils.

Geology 1 is the launching platform before taking any of these courses. Geology 1 is necessary for students who take any other geology courses because the topics are interrelated and inter-reliant. For example, to fully understand paleontology and the extinction of the dinosaurs, students first need to understand the basics of rocks and

geologic time and plate tectonics and glaciers, and the basics of this Geology 1 course. Similarly, to take a class in Earthquakes, students first need Geology 1 to set the framework for them because to understand earthquakes, you need an understanding of plate tectonics and the basic rock types and geologic time.

Consequently, Geology 1 is the course to take before taking any other geology courses.

For non-science majors, the broad focus of the Geology 1 course on so many topics, allows students to gain a broad understanding of geology that is useful throughout the rest of their lives. I strongly recommend not selling your geology textbook back after the course is over. Ten years after the course is over, you will find the textbook a very easy and useful reference when you see mountains and geologic features around you (and when your kids or friends ask you what those things are!).

Geology 1 is where some students will discover geology as a possible major and future career. Before taking a college geology course, most students have little to no exposure to the true content and breadth of geology; consequently, most geologists don't discover geology as a potential career path until they take a college Geology 1 course.

Again, because there are so many topics to introduce and touch upon, none of the topics can be covered in extreme depth or detail. That said, geology majors will discover that not all of the topics in this Geology 1 course are mentioned again in future geology courses. What that means is that what you learn about some of the topics in Geology 1 will be the extent of what you get. That will be it. And that means that you shouldn't blow off any of the topics in this course. Don't assume that you'll get more of it later in another class.

For example, I have a Master's Degree in Geology with an emphasis in Geophysics. My degrees are from UC Davis and I attended during a time when the geology degree required so many courses that most students were not finishing in four years. And even with all of those course requirements, there were no required courses in Deserts or Glaciers or Mass Wasting for example. Basically, what I learned about those topics came from my Geology 1 course.

The Geology 1 course is not simply a 'sampler course' to geology. It can serve as one for the non-science major, but for geology majors, the Geology 1 course is the foundation course for everything that comes afterwards. And there are topics in the Geology 1 course that you will not see again in other classes. And that makes the Geology 1 course important, not simply a survey course.

Because so many of the topics in geology are inter-related and 'co-dependant', it is crucial for students to get a basic intro understanding of all of the topics *before* delving into specific topics in detail. This overview and framework understanding of geologic time, plate tectonics, rocks and minerals, surface and internal processes, this holistic understanding is crucial to properly understanding specific geologic topics such as earthquakes or volcanoes or environmental geology.

Sometimes I meet students who already think they know what they want to focus on. Take earthquakes for example. A student might feel that they are very interested in earthquakes, and that they aren't interested in glaciers or rocks or fossils or volcanoes. From an instructor's standpoint, it's very difficult to explain earthquakes to someone who isn't interested in learning the broader basic processes and vocabulary and connections that ultimately are fundamental basics of sub-topics such as earthquakes.

Earthquakes, for example, are a result of plate tectonics and rock types and geologic time. How can you explain or discuss earthquakes with someone who doesn't want to learn the basics first?

Environmental Geology is another good example. The word environmental is a hot-button 'selling word', that draws people in. The reality is, however, that it's much more efficient and effective to take Geology 1 first and learn the basics and underlying framework and interrelated processes, and then focus in on the environmental aspects in more detail in subsequent courses.

Getting back to what this class is all about. I'll do a quick summary:

- **This overview introduction to the basics of geology is crucial for later classes**
- The overview to so many aspects of geology makes the class ideal for non-science majors as this course will explain many of the geologic features that are all around us.
- Geology majors rely on this course as the launching platform for basic principles and concepts. Geology 1 is the foundation course for the geology major. Some of the topics covered in this course may not be mentioned again in subsequent courses. This may be it.
- Because there are so many sub-topics, we can't spend too much time on any one topic. You will not become an expert in earthquakes, for example. However, after this class, you can take entire courses in topics such as earthquakes or volcanoes or paleontology. Geology 1 is not the entire geology degree, there are many other courses.
- Because there are so many sub-topics, if you don't like a certain sub-topic, you can take solace in the fact that we can't spend too much time on it! (glass-half-full)

If you find yourself really interested or intrigued by any of the sub-topics, you have something at your disposal that is a highly effective and useful tool – the internet. So much wonderful and solid information is available that you can simply run web searches on your areas of interest and you delve into as much detail as you want to. Simply make sure that you are sticking to reliable websites.

How can you ensure that the website you are viewing is legitimate? Check the URL (the web address). Look for web addresses from official colleges or universities, these typically end in '.edu'. Or look for state or federal websites, and these typically end in '.gov'. Do not believe everything posted in every blog or web article or web page. There are many K-12 instructors who give their fourth, fifth and sixth graders the assignment of looking up a topic such as earthquakes and then putting their essay up on the web. These

often have K12 in the web address. If you aren't sure if a website is 'legit' or a reliable source, go to the root web page and see who controls the overall website. Is it a college or university? Or is it an elementary school? Or is it someone's personal website?

At any rate, the internet is a fantastic source of information and content. Just make sure that you evaluate the sources of what you are reading.

In conclusion, the Physical Geology 1 course is the foundation course for geology. Geology 1 provides an introduction to many of the sub-topics of geology and serves as a wonderful overview intro course for non-science majors. For geology majors, Geology 1 is a crucial foundation course that gives the student the interconnected framework and understanding of geologic principles.

And finally – Geology is fun! Come on! We get to cover the basics of earthquakes without getting bogged down in the details (that means the math!). We get to cover the basics of Volcanoes – one of the Earth's flashiest shows. We get to cover all sorts of cool topics like caves and landslides and mineral formation.

And best of all: Geology is all around you. You are going to see it for the rest of your life. And after this course, you will understand so much more of it. Every time you visit the beach, or a national park, or just travel from one city to another. All around you will be things that were covered and explained in this class.

Geology 1 is a class that you will find useful for the rest of your life!

When you are 80 years old and are talking to your great-grandkids, you will find yourself explaining the geology around them to them. It's fun!

Geology. Geo means Earth and ology is 'the study of'.

Geology is the study of the Earth.

It's not the study of rocks. That's Petrology.

Geology 1 does include an introduction to rocks, but there's so much more to Geology 1. It's earthquakes and volcanoes and plate tectonics and fossils and caves and landslides and, who wouldn't think all of that is fun?!

Geology is the study of the Earth, and when you are finished with this course you will have a basic understanding of where, and where not, to build your house. You are going to understand so much when you watch the news and they are talking about an earthquake that happened somewhere, or a volcano that just erupted, or a river that just flooded, or a landslide that just slid through a town. This class is one that everyone should take. This class covers basic, fundamental concepts and facts that everyone should know before buying a house, or voting for laws that affect zoning and where people live and build.

After you finish this course, I hope that you will do what many past students have done – tell your friends and family to take this course. Parents, brothers, sisters, aunts, uncles, friends, grandparents, tell them all to take this course.

Geology 1 is a fun course, that's useful and covers things that are so basic and fundamental to everyone's lives.

Everyone doesn't have to get a geology degree. Everyone doesn't have to become a geologist. But everyone should take this first geology course.