UH Rocks!

A Virtual Field Trip of UH Campus Building Stones

Physical Geology - Summer 2023

Name:

myUH ID number:

Professor’s Name:

Class Days and Time:

# Academic Honesty (Acknowledgement Required)

The UH Rocks! virtual field trip is to be completed by yourself; you should not work with a partner or group. Do not search for answers on the internet because 1) it is cheating, 2) answers that are posted are incorrect, and 3) many of the questions change every semester. It is a violation of UH Academic Honesty Policy to upload any of this material to sites such as Chegg and CourseHero. If you are unfamiliar with a word or geologic concept, it is okay to look it up online to find the correct spelling and definition. If you find yourself needing help, go to the [Geoscience Learning Center](https://uh.edu/nsm/earth-atmospheric/undergraduate/learning-center/index).

By submitting this work, I, Type Your Name Here attest that I have not violated the UH Academic Honesty code. I completed this assignment by myself and did not copy any portion of my answers from another student, a website, or any other source.

# Instructions

The buildings, boulders, and sculptures on the University of Houston campus use a variety of geologic materials. This tour takes you to many stops on campus to learn about them. At each stop you will need to read about the rocks, look at images, and answer questions.

Each location has a short description of the stone and several photos. In spring 2023, we added some 3D montages using photos and LiDAR imaging. Be sure that you click on both the photos and link to the 3D images to see the details of the building stones. The process of combining creating these 3D images isn’t perfect; so, some of the 3D images have gaps and irregular edges.

## Accessing the Trip

This virtual field trip has been built in Google Earth. [Click here to access the trip](https://earth.google.com/web/data=Mj8KPQo7CiExaXFOVVBlbUNMYU5QRk1rTjZqYlM2QVNuOXpLSmRKeWYSFgoUMEY5Rjg4NjFEQzE2MUZGMTE3REM). The first page that comes up is a summary of building stones. Use the menu on the bottom left to move between stops. At each location a box will appear on the right side of the screen with information about each stop and images. Click on the images to make them larger.

## Written Answers

All answers should be written in complete sentences and typed in the supplied boxes. Your responses will appear in a green-colored font, do not change this. Any answers not written in complete sentences will be marked as incorrect and will not receive credit.

Each stop has several questions, but you only need to answer a few questions for each stop. You can choose which of the available questions you want to answer.

## Assignment Submission

Save your completed PDF assignment as “yourlastname\_firstname\_VFTCampusTour”. **Email your completed PDF file to** [**easglc@central.uh.edu**](mailto:easglc@central.uh.edu)**.** You will not get confirmation that it has been received.

Teaching Assistants (TAs) will begin grading submissions after the deadline in early May 2023. You will receive an email from a TA when your assignment is graded. If your assignment requires resubmission, you will have 48 hours (2 days) to do so.

# Introduction Slide

Be sure to read the introduction to the Google Earth trip, it contains important information that can help you answer some questions. Access the trip [here](https://earth.google.com/earth/rpc/cc/drive?state=%7B%22ids%22%3A%5B%221iqNUPemCLaNPFMkN6jbS6ASn9zKJdJyf%22%5D%2C%22action%22%3A%22open%22%2C%22userId%22%3A%22111044525520816793780%22%7D&usp=sharing).

# Stop 1 SR1 Lobby (Answer five of these questions)

## Fake Rock (look at 3D image to find this)

1. Many students think the ceiling is a sedimentary rock. Describe features that you observe to determine that it is a fake rock.

## Sedimentary Rock

1. Why is this rock red colored?

1. Is this a good rock for building stone?

## Igneous Rock

1. In what type of tectonic environment might you find a gabbro?

1. What is the equivalent volcanic (extrusive) rock?

## Metamorphic Rock

1. When do you think the fractures formed: before, during or after metamorphism to marble?

1. Marble is not foliated. Explain.

# Stop 2 SR1 Mineral Cases (Answer three of these five questions)

1. How many samples are in the collection?

1. How did the prehnite form?

1. Why did salt originally form with the prehnite?

1. What footprints are on display?

1. In what class offered by the EAS department would you learn about minerals?

# Stop 4 SR1 Rock Garden (Using the 3D image, answer one of these three questions)

1. There are 7 igneous rocks here. List these numbers.

1. There are 7 sedimentary rocks here. List these numbers.

1. List the numbers for 3 minerals.

# Stop 5 Fleming Ledge (Answer one of these three questions)

1. What is the mineralogy of granite?

1. Is this a mafic or felsic rock?

1. What causes crystal zoning?

# Stop 8 Cullen Hall Lobby (Answer one of these three questions)

1. Why are the marble blocks angular?

1. When did the cross-cutting calcite veins form relative to the large marble blocks?

1. Describe the differences and similarities between the marbles here and in the 9/11 Memorial at Stop 16.

# Stop 10 Student Service Center Ceiling (Answer one of these three questions)

1. What is the main composition of a stalactite?

1. What is a unique property of calcite that makes it easy to identify?

1. Why are these forming on this ceiling?

# Stop 11 Student Service Center Ledge (Answer one of these three questions)

1. Although the minerals in slate are too small to be seen without a microscope, what platy minerals do you think are present?

1. Along what type of plate boundary would slate most likely form?

1. At higher metamorphic grades, slate transforms into       *then* *and finally*      . (Fill-in, complete sentence not required)

# Stop 13 Statue of Four Lies (Answer one of these three questions)

1. There are three different marine fossils in this rock. Describe these from one block and determine if each block is the same.

1. How does a fossil mold form?  What are fossil casts?

1. What type of depositional environment does this limestone represent?  What were the water conditions (i.e., temperature, depth, oxygen abundance, etc.) within which these ancient shelly organisms thrived?

# Stop 14 Cullen Auditorium Lobby (Answer one of these three questions)

1. What type of metamorphism forms serpentinite? Burial (pressure increase), Hydrothermal (hot water), Impact (pressure and temperature increase due to collision with a meteorite), Regional (both pressure and temperature increase during convergence) or Contact (temperature increase when an igneous intrusion cools)?

1. In which two tectonic settings would you likely find serpentinite: divergent, convergent, transform? Explain your answer.

1. Why is this called serpentinite?

# Stop 17 Cornerstone Melcher Hall (Answer one of these three questions)

1. How is cross-stratification produced?

1. What kind of marine environment can produce different directions of cross-stratifications? (Hint: Tide and Ebb)

1. What are oolites?

# Stop 19 Boulder at Library Loading Dock (Answer one of these three questions)

1. You have seen a similar igneous rock on another stop. First give the stop where you saw a similar rock. Observe any differences or similarities between these two occurrences. Why are they different?

1. What is the tectonic setting for the gneiss and felsic dike?

1. During the 200 million years between metamorphism and intrusion of the dike, what happened to gneiss?

# Stop 21 Benches at School of Architecture (Answer one of these three questions)

1. You have seen a similar igneous rock on another stop. First give the stop where you saw a similar rock. Observe any differences or similarities between these two occurrences. For example, compare the abundance and size of the minerals between these two.

1. Is this a good stone for sculpture? Have you tried sitting on these artistic benches? If so, describe your reaction to this stone.

1. If you have a granite countertop at home, describe how it is similar or different from these blocks.