

**ESC 1000 (Neuhoff)**  
**Assignment #2: Rocks and Tectonics**

Name: \_\_\_\_\_ UF ID: \_\_\_\_\_

Assignment is due by the beginning of class on Wednesday, October 13. This assignment is worth 45 points towards your final grade. Please answer the questions below in the answer blanks provided. Your textbook will be a useful reference for help with the assignment. This is an individual assignment, but if it helps to go out and look at the rocks in small groups to share ideas, feel free to do so. **ASSIGNMENTS TURNED IN WITH IDENTICAL ANSWERS BETWEEN STUDENTS WILL BE TREATED AS CHEATING...SO USE YOUR OWN BRAIN AND WRITE YOUR OWN ANSWERS.** Dr. Neuhoff will lead optional trips to the locations listed below on Monday, October 4 at 1:30 PM and on Tuesday, October 5 at 2:30 PM (meet at stop #1).

The basic idea behind this assignment is that you are going to go around campus to several “outcrops” and answer questions about the rocks exposed there. The outcrops are not real exposures of bedrock, because little of that is present on campus (although we will look at some later in the class). Make sure you go to every stop and spend a few minutes observing the rocks in question and think about the questions in terms of rock cycle processes we talked about in class. For the rock descriptions, remember that geologists use two things, texture and composition (mineralogy), to describe rocks and figure out how they formed. In some cases you should know the technical terms for textures (or be able to figure them out from your notes and/or the book), but if not just describe what you see in plain English. Since you do not have experience with mineral identification, try to figure out how many different minerals you see (look at things like color, habit, luster, etc that we talked about in class). If you can figure out the minerals, that’s great, but it is not required. Grading for the assignment will be based on the effort you put in and whether you are able to relate what you see to concepts described in class. Be as descriptive as possible. If you decide to accompany Dr. Neuhoff around the stops, **DO NOT** just write down what is said...make your own observations!!

Did you go on one of the field trips with Dr. Neuhoff?? \_\_\_\_\_

If so, which day? \_\_\_\_\_



- 3) These two rocks actually have the same composition (came from the same type of magma/lava). The difference in color is not due to a difference in magma type, but is really a consequence of the textures of the two rocks. It turns out that you can figure out the magma/lava type from the light-colored rock.

In the light rock, how many minerals do you see? Describe the minerals. What proportions of light and dark colored minerals are in the rock? What kind of magma did this rock cool from?

The dark rock appears black because of its texture; in fact there aren't any minerals in it aside from the small white grains in it. Note the faint banding in the rock...how do you think this formed?



- 4) Look carefully at small (cm-scale) overhangs on the boulders. Underneath these features you should find some light colored quartz sand? Why is this here (i.e., what rock cycle process is causing this sand to build up under the overhangs)?



3) Still looking at the slabs to the right of 131, note the small faults cutting veins in the rock that often appear in pairs (hint: you don't actually "see" the faults, but if you follow a prominent bright red layer that is about 1 cm thick through along you will see where it has been cut by faults. Draw this feature, including where the faults are and put arrows on your diagram to indicate how they moved with respect to each other.

4) This rock came from the western side of the Appalachian Mountains, probably in East Tennessee (it is known as the Knox Limestone/Marble). The precursor is older than the mountains (we actually know this from the fossil you drew...it is only found in rocks older than the mountain building event in the Appalachians...we will discuss this type of reasoning more later in the course). Would you expect the features and processes you described in questions 1 and 3 for this stop to take place in the tectonic setting of the Appalachian Mountains? Why?