Astronomy 184L — Life in the Universe
Lab #1: Geology/hand samples lab

Due by 18 September 2009

The goal of this lab is for you to learn about and get to hold and examine different kinds of rocks. You will also learn about the environmental conditions present when different kinds of rocks were created. You will examine meteorites and compare and contrast rocks from space to terrestrial rocks. The material you learn in this class will form a critical backbone for the field trips we will have later in the semester.

The assignment is described below. **This assignment is due by 3 p.m. on 18 September 2009.** You should work with a partner on this project. Both group members will receive the same grade for this lab. You should turn in one (1) final lab per group.

1 The assignment

Part 1: There are thirteen rock stations around the room. Each station has only one kind of rock at it. Three of the rock stations are meteorites (on loan from the Geology department). For the rocks at each station, please answer the following questions.

- What kind of rock is it?
- How do you know?
- What are the characteristics of the rock? Describe the rock.
- If there are multiple rocks at a station, describe how the different rocks are similar or different to each other.
- Which of these characteristics are significant and defining?
- What was the environment in which this rock was created?
- Where in Arizona would you expect to see this rock on the ground?

Part 2: Please answer the following questions.

(1) In what type(s) of rocks would you be most likely to find evidence of past life? Explain.

(2) Considering your answer to (1), what sorts of rocks and environments would you look for on other planets to find evidence of past life? Why?

(3) Sedimentary rocks have been found on Mars. Considering the current conditions on Mars, what sorts of depositional environments are currently creating sedimentary rocks on Mars? Why would it be significant to find sedimentary rocks that were clearly deposited in water?

(4) How would different kinds of meteorites fit into the three different categories of terrestrial rocks? In what ways would meteorites not fit into any of these categories? Discuss.

2 What do we turn in?

You should turn in one assignment per group. You might have a page or two of tables for Part I and perhaps a page of text for Part II.