Lab #8: Observing the Earth's moon — Astronomy 184L — Life in the Universe

Due by 5 December 2008

The goal of the observing lab is for you to learn how to make actual observations of planetary bodies, and how to identify their surface features using various references. The observing lab shouldn't take you very long to do, but you need to be careful and precise – just like all observers from the ancients to today have had to be.

The assignment is described below. **This assignment is due by 5 Dec 2008.** You should work with a partner on this project – someone you have not worked with so far this semester. Both group members will receive the same grade for this lab. You should turn in one (1) final lab per group. Please do not procrastinate in carrying out your assignment – it is not hard, but will take a little advance planning.

1 The assignment

Your assignment is to observe, sketch, and identify geological and surface features on the Moon. You should observe the moon at least 10 times for this lab, recording the phase of the moon and which features are visible.

The sketches you make do not need to be super-precise. Please record as much detail as you can, but you probably don't need to spend more than 5-10 minutes on each observation. In your sketches, you should record light and dark areas on the surfaces of these bodies. You should record any surface features (craters, rays, linear features) that you can see. Pay attention to areas which might have shadows and draw those too. And last, but most certainly not least, you **must** record the date and time of your observations. We do this so that later we can remember and reconstruct what we were looking at.

2 Your equipment

Your eyes. Binoculars may help, and are optional.

3 Your discussion

You should briefly (less than a page) discuss the geological history of the moon, and how the features that you have mapped and identified on the moon are related to this history.

4 What do we turn in?

You should turn in one assignment per group. You should turn in both the sketches you made at each time you observed the moon and also a final, labeled, composite sketch. For the individual sketches, You also need to label your maps with the time and date you made the observations. If you can, also label where the Moon was in the sky: East, West, South, North. Try to draw a "finder chart," that is, a sketch of the part of the sky which includes the Moon, showing some nearby bright stars. On your finder chart, try to indicate which stars are brighter and which ones are fainter.

For the final, labeled, composite sketch, you should combine all your observations into a "master" sketch. You should be able to identify at least several major maria, some major craters, and perhaps deduce the

locations of several mountain chains. You should mark these on your sketches, as well as the Apollo landing sites. You should be able to identify and label the planetary longitude and latitudes you are looking at!

How do we find all this stuff out? There are lots of resources. Look for stuff on the web. There are lots of resources in the library. Amateur astronomy magazines like *Astronomy* and *Sky & Telescope* have lots of information too. You must turn in your reference list as part of your assignment – even if (especially if) you use the web!

5 Parting shots

Most importantly, enjoy your time looking at objects in the night sky and learning about the Moon.