

## Fundamentals of Stargazing – Month 10 Worksheet

**Project #1:** Read the notes on the main course page about Mercury and Venus to get a sense of where and when the planets become visible in the morning or evening sky this year. With a telescope, follow the gradual change of the phases of each planet (wait until the Sun sets to avoid accidentally looking at the Sun with an unfiltered telescope). Also, follow motion of each planet relative to the horizon during the year to get a feel for how these planets move and when they become visible.

**Project #2:** a) Review and remember the safety tips for solar observing on page 8 of the observing section. And remember never to use welding glass or any kind of solar filter at the focal plane of a telescope that does not have a blocking solar filter over the objective lens. b) What is the difference between a white light and hydrogen alpha solar filter? c) Mars makes its next apparition in early 2016, and you will get a full observing guide in the last month of the course. If your budget allows, order a few color filters (of those listed on page 3 of the Observing section) that will enhance the view of various features on Mars. At a minimum, try to get No. 23A or 25 and a No. 15.

**Project #3:** Review the notes on Galaxies in the Science section this month. Using the notes and the Hubble galaxy classification diagram on page 5, and using images you can find online, try to roughly classify the following galaxies: NGC 6744, Messier 86, NGC 6822, NGC 6946, and Messier 33.

**Project #4:** Go have a look at the eclipsing variable star Algol ( $\beta$  Persei) over several consecutive nights to watch its brightness rise and fall. Compare the brightness of Algol against  $\epsilon$  Persei (magnitude 2.9) or  $\gamma$  Andromedae (magnitude 2.1). During an eclipse, the star remains at minimum magnitude for about two hours before slowly rising to maximum brightness over several hours. You can get up-to-date predictions of the eclipses each month at *Sky and Telescope* (you may need to set up a free user name and password):

[http://www.skyandtelescope.com/observing/objects/variablestars/Minima\\_of\\_Algol.html](http://www.skyandtelescope.com/observing/objects/variablestars/Minima_of_Algol.html)

**Project #5:** See as many deep-sky sights on this month's tour as possible. Some of the most appealing objects on this month's tour are:

- The Alpha Persei moving group (very nice in binoculars)
- The Double Cluster in Perseus
- Kemble's Cascade (northern hemisphere only)
- NGC 247 (a spiral galaxy in Cetus)
- The Large Magellanic Cloud (southern hemisphere only)