Astro 101 Final Project

The final projects will be due/presented on Wednesday December 4. The final project will be worth 30% of your final exam grade. Your final project idea must be chosen by Monday Nov 18.

Final project requirements: All final projects include a 1–2 page typed report, as well as a 5–10 minute presentation to be given to the class on Wed Dec 4. Your written report should include answers to the questions posed below, as well as any information you think is interesting and relevant. You should imagine the report as something your fellow students would read to learn about your topic. You may use any materials you wish during your classroom presentation; however, we recommend that you speak to one of us by December 2 if you’d like to use the projector. Again, you should aim your presentation at your fellow students — use the opportunity to teach them something new and interesting that you’ve learned.

Grading criteria: Final projects will be graded based on the following criteria: Completion of task. Quality of writing. Depth of knowledge of the subject expressed in writing and presentation. Clarity and quality of presentation.

Project Ideas (Choose one)

- Photograph the moon phases. Photograph the moon every day at the same time for a week. Assemble a set of images. Your report and presentation should discuss what you expected to find, what you did find, and what explains the appearance of your photos.

- Interview an astronomer from NOAO. Find out what scientific areas the astronomer is studying. What questions are he/she trying to answer? What tools (telescopes, computer programs, etc.) are he/she using to study these questions?

- Is the full moon larger when it’s on the horizon? Take pictures of the moon just after it rises, and then again about 6 hours later. Measure the size of the moon in the two photos. In your report and presentation, explain what your expectations were prior to the project, what you found, and what explains your result.

- Light pollution in your community. Obtain a “Sky Quality Meter” from one of us. Then go to http://www.noao.edu/education/gan.php and follow the directions for “web application data submission process” to submit a report about the light quality in your community at night. Also, use the website to read about the Globe at Night program. In your report and presentation, explain what light pollution is, why it’s important to study, how the quality of your community’s night sky compares to others and why.

- Measure the circumference of the earth. Do a Google search for “Eratosthenes” to learn how he measured the circumference of the Earth, and try this experiment for yourself. If you’re interested in this project, see Katy for further description and help with the measurement collection.

- What is Comet ISON? Do internet research about Comet ISON. Why is it interesting? Why is it expected to be so bright? How and when can you and others in the class view this comet?

- Photograph Comet ISON. Go out in the early morning and photograph Comet ISON. In your report and presentation, discuss how you knew where to look for the comet, how you obtained a good photo, and describe any features you see in the image of the comet.

- Do an internet search for iridium flares. Find out when one will be overhead at your location, and photograph it. Explain to the class what an iridium flare is, how you knew where to look for it, and explain what your photo looks like and why.

- Measure the diameter of the sun and look for sunspots. Build a pinhole viewer and use it to measure the diameter of the sun and look for sunspots on the sun’s surface. See instructions here: http://cse.ssl.berkeley.edu/AtHomeAstronomy/activity_03.html. Your report should explain how a
pinhole viewer works, why it’s useful, and what other uses it might have. You should also report whether you saw any sunspots and, if so, how many.

- **Write a fictional story related to something we discussed in class.** Consider entering the fiction writing contest described here (by November 14): http://isef.tomorrow-projects.com/submission-specifications/. Discuss with one of us if you need help with the submission process.

- **Do a technical astronomical project.** See http://www.noao.edu/education/astrobits/ for several project project ideas involving the analysis of Kitt Peak data. Discuss *early* with Katy if you are interested in this project.

- **Your own idea!** Have an idea not listed here? Is there is something else you want to learn about related to astronomy? Discuss your idea with your instructors. You can also browse project ideas here: http://www.sciencebuddies.org/science-fair-projects/Intro-Astronomy.shtml
Preliminary report: Due Monday November 18th

- What is your chosen project?

- What resources will you need to complete your project? (For example, will you use the internet, a camera, a computer program, a light quality meter, etc.?)

- Of the resources you need to complete your project, do you need any of them to be supplied by your instructors?

- Write down three questions you expect to answer in your written report.

- What materials do you expect to use in your presentation to the class?