Lab Instructor: Jacob D. Haqq-Misra
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Assignment Mailbox: 256A
Office Hours: Friday, 2:00 – 3:00 PM or by appointment (held in Tate room 451)
TA Office Phone: 626-0034 (only answered during posted office hours)

Please read the entire syllabus carefully. You are responsible for all of the requirements and procedures described here, as well as any changes made to the syllabus during the course.

Office Hours: I am available during my office hours in room 451. Office hours are much more exciting for me when students come and ask questions. Students also tend to get more out of office hours when they attend them. If you cannot attend my regular office hour, please feel free to contact me and schedule an appointment. I would be more than happy to meet you at your convenience! Also, you are welcome to attend any TA’s scheduled office hours.

Exhortation: We live in a wonderful time to study astronomy. Even though most of you will not go on to take another astronomy course in the remainder of your life, the technological feats of scientists and engineers will certainly come up one time or another. Today’s technology allows for incredible discoveries such as the ability to view objects thirteen billion years old!!! And in just a decade we even plan to be searching for other planets much like our own! (Links to these provided below.) Although many of you simply need a “science with lab” course, your selection of astronomy will not go unrewarded in life as the appreciation you gain for the field now will magnify the delights of the future.

Terrestrial Planet Finder: http://planetquest.jpl.nasa.gov/TPF/tpf_index.html

(And now I’m done being philosophical. On with the syllabus!)
About the Lab: This lab is designed to supplement the astronomy 1001 lecture by providing a hands-on experience with many of the general topics. The lab consists of three components: group work, essays, and moon observations. Keep in mind that this lab is part of the course. Instructors can (and will) draw on this information for exams. The course material requires time and thought, but it is not designed to trick you; if you stay caught up and ask questions you should be in good shape. Note: course policy states that you must score over half of the available points in the lab and in the essays to pass the course.

Weekly Group Work: best 11 or 12 assignments@ 20 points each = 220 points
Each week, we will complete an activity using cooperative learning groups; therefore, one lab assignment will be turned in per group. Please be sure to arrive on time so as to allow your group the complete allocated time to finish your work. Because of the nature of this group work, it is difficult to make up labs, especially after the fact. If you know of an absence ahead of time, let me know in advance and we can arrange for you to attend another lab section for that week. Labs are scheduled as follows:

- January 24: Lab D (Observing the Moon)
- January 31: Lab A (Astronomical Distances)
- February 7: Lab B (Kepler’s Laws)
- February 14: Lab L (Impacts from Space)
- February 21: Lab E (Telescopes)
- February 28: Lab F (Atomic Spectroscopy)
- March 7: Lab I (Energy Flows)
- March 21: Lab H (HR Diagram)
- March 28: Lab N (Life in the Universe)
- April 4: Lab J (The Expansion of the Universe)
- April 11: Lab K (History of Matter)
- April 18: Lab G (Dark Matter)

Essays: 3 essays @ 40 points each = 120 points
The essays are designed to allow you to explore some important scientific and environmental concepts in detail, using popular and scientific sources. We will discuss the specifics and topics of the essays as each one is assigned. In general, be prepared to construct well-written scientific essays. For each topic I will provide some suggested sources to begin your research, but you should also investigate some sources of your own. These are not term papers, but they should be well thought out and scientifically accurate. They will be graded on content as well as writing style. It would be really, really useful for you to write your essay ahead of time and let me read it before the due date. I am happy to give you feedback on a draft so you can make changes. I highly encourage all of you to do this. (It is fine to email me the draft; the final must be turned in hard-copy during lab.)

Essay 1: February 11  Essay 2: March 11  Essay 3: April 15
Observational Project: 140 points (in three parts)
The observational project consists of making measurements of the moon (using a technique we will develop in lab D). You will take measurements during the course of the semester for use in a final report at the end. It doesn't work at all to put off your observations until the end, so be sure to pace yourself and make measurements often. (Hint: is the moon only up at night?) The project will be completed over three phases:

Part I (20 points): at least 3 observations turned in both ONLINE and a PHOTOCOPY of the observing form (to 256A) by 5 PM on February 18.

Part II (40 points): at least 6 more observations (for a total of at least 9) turned in both ONLINE and a PHOTOCOPY of the observing form by 5 PM on March 23.

Final Report (80 points): at least 15 total observations entered online and the Final Report (from lab book) due in slot in 256A by 5 PM on April 22.

Observations should be turned in using a web-based tool on the class website. The online tool allows you to get immediate feedback on your calculations so you can correct any mistakes at the time. Be sure to enter your observations in the web system within a day of making the measurement (otherwise the system might think you are making up the data). You should also use the sheets in your lab booklet to keep a paper copy of your observations. A photocopy of these should be turned in as well for the three parts of the project. The online submission tool is at: http://www.astro.umn.edu/courses/1001/moon/

Late Work: For legitimate reasons (illness, emergency, death in the family) we can with your individual situation. Be sure to send me an email to let me know what's going on and we can figure things out. For illegitimate reasons (laziness, lack of sleep, boredom) I will be slightly less understanding. Late assignments (essays, moon project) must be turned in to me by hand (not email) and will be graded at a penalty of 10% for each day past the deadline. Regarding group lab work, you should be able to complete assignments during class. If not, you are allowed to finish the assignment as a group on your own time during the week and turn it in at the next lab section. No labs will be accepted after a week has elapsed.

Special Requests: If anyone has needs or necessities that require accommodation, please let me know during the first week of class.

Academic Standards: The College of Liberal Arts scholastic conduct and classroom procedures will be followed. You are responsible for knowing and following these procedures. Working in groups promotes learning from others; however it is quite simple to discover cheating. Using other people’s observations, whether those of classmates, strangers, the Internet, etc., will not be tolerated. University actions will be taken if this occurs.

“If you want to make an apple pie from scratch, you must first create the universe.” —Carl Sagan