ASTR1120L & 2030L – Introduction to Astronomical Observations

Spring 2019

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follow the link to ASTR1120L & 2030L. IT IS IMPERATIVE THAT YOU MONITOR THIS WEB PAGE AT LEAST ON A WEEKLY BASIS. Important announcements for the course will be posted there throughout the semester.

Phone: 706-542-2876
Office Hours: (LAM) Mondays 3:30 PM – 5:30 PM or by appointment

Class: Tuesday 8:00 – 10:45 PM. We will begin each class in room 221 Physics. When we will use the large telescope to make observations we will be in the dome on top of the Physics Building. Be sure to wear warm clothing if the evening is cold. Although we will be inside the dome, the temperature there is virtually the same as outside, so be sure to wear warm clothing if it is cold outside.
COURSE OBJECTIVES

The purpose of this course is to introduce the student to the night sky and to small telescopes for making simple astronomical observations. These courses are de-coupled from the ASTR 1110H, and ASTR 1120H lecture courses in the sense that (1) they don’t have to be taken the same semester as the corresponding lecture course and (2) they don’t necessarily cover the subject matter of the lecture course. The reason for not covering the subject matter of the corresponding lecture course is that it is too difficult to observe most of the non-stellar objects discussed in ASTR 1120H using our small telescopes at the not-very-dark-sky site we use.

METHODOLOGY

The objectives of the course will be achieved by having the students complete 8 astronomical lab exercises, 5 of which are completed indoors, 3 of which involve telescopic observations using the telescope upstairs. This will give the students an introduction to the night sky and to using telescopes. Some of the 5 indoor labs involve using online astronomical databases; an important research technique in modern astronomy. There will also be a written lab final exam and 2 in-class quizzes.

The 3 observing labs involve using the large 24-inch telescope on the roof of the building. The telescope labs are:

1) Determining the mass of Neptune using the motion of its big satellite, Triton, and Kepler’s Third Law.
2) Finding the planets Uranus and/or Neptune and detecting their motion with respect to the background stars.

3) Taking images of at least 5 deep sky objects (explained in class).

In addition to the observing labs you will complete 5 written (indoor) labs during the course of the semester. The 5 indoor labs will be chosen (tentatively) from the following:

1) Star Charts and the Celestial Sphere.
2) Using the Naval Observatory’s star chart database to create maps of small regions of the sky.
3) Using the SIMBAD database to determine physical information on a sample of celestial objects.
4) Using the Virtual Observatory database to study a selected (by me) area of the sky.
5) Kepler’s Laws
6) Spectroscopic Properties of Stars
7) The Hubble Relation

To do the above labs,

**YOU WILL NEED TO BRING A LAPTOP TO CLASS THAT CAN WIRELESSLY CONNECT TO THE INTERNET.**

I will allow people to work together (see below) so only one person of each group needs to bring a laptop.

By the end of the semester, you (or your group, see below) will have turned in lab reports on 8 of the above labs (3 observational and 5 indoor) and finished the outdoor lab on recognizing constellations.

A write-up describing each of the outdoor lab is on the web page.
We will break up the class into groups of 4 because it will make the observing sessions more manageable. The composition of these groups will remain the same throughout the semester. A lab report can be turned in by a group, and it is not necessary that all members turn in an individual lab report. However, the quizzes, and lab final exam are taken individually.

**GRADING**

Each lab report is 8% of your final grade. Thus, 8 labs contribute a total of 64% to your final grade. The 2 in-class quizzes will each contribute 9% to your final grade (thus, they will together contribute 18%). The lab-final exam will contribute 18% to your final grade. As mentioned above, the lab-final will be given during the last two weeks of class. From the lab reports, the quizzes, and the lab final, your total score on a scale of 100 will be computed. That numerical grade will be turned into a letter grade using the following key:

A is for a score of 90.00 or above, A- is for the range 87.00 – 89.99, B+ is for 84.00 – 86.99, B is for 80.00 – 83.99, B- is for 77.00 – 79.99, C+ is for 74.00 – 76.99, C is for 70.00 – 73.99, C- is for 60.00 – 69.99, D is for 50.00 – 59.99, and F is for any average below 50.00.

**STUDENT RESPONSIBILITIES**

Please make a reasonable attempt to arrive on time. If you must leave earlier than the scheduled end of class, please do so quietly. Class disruptions or distracting behavior will not be
tolerated.

Ask for clarification on anything you find unclear, ambiguous, or unspecified in this syllabus. This includes both course policies and astronomical topics.

Know the rules concerning withdrawals and incompletes, published in the UGA *Undergraduate Bulletin*. Note that I will NOT withdraw you from the course for excessive absences. Note also that after the midpoint of the semester, a withdrawal is assigned a grade of WF, except in those cases in which the student is doing satisfactory work and the withdrawal is recommended by the Office of Student Affairs because of emergency or health reasons.

**ACADEMIC HONESTY**

All students are responsible for knowing, understanding, and abiding by the academic honesty policy of the University of Georgia, which can be found online at [http://honesty.uga.edu](http://honesty.uga.edu). If you have any questions about this policy and how it pertains to your work in this course, please ask me for clarification.

**TENTATIVE SCHEDULE**

This schedule is tentative because it is subject to the weather conditions on the given lab night.

January 15 – Introduction, going over syllabus

January 22 – Lecture on celestial sphere, night sky constellations (if clear)

January 29 – Lecture on telescopes; Learning to use telescopes
February 5 – Exercise on the celestial sphere – Learning the night sky
February 12 – Quiz on the celestial sphere – Learning the night sky or the telescope upstairs
February 19 – Learning the night sky – observational session or indoor exercise
February 26 – Observational session or indoor exercise
March 5 – Observational session or indoor exercise
March 12 – Spring Break
March 19 – Observational session or indoor exercise
**Withdrawal Deadline: Thursday, March 21st, 2019**
March 26 – Observational session or indoor exercise
April 2 – Quiz on night sky - Observational session or indoor exercise
April 9 – Observational session or indoor exercise
April 16 – Observational session or indoor exercise
April 23 – 1st chance to take lab final – Observational session or indoor exercise
April 30 – 2nd chance to take lab final