

# Astronomy 101L – Fall 2019

## Introductory Astronomy Laboratory: Our Place in Space

Section 412: Mondays 2:30 pm – 4:20 pm

Classroom: Chapman Hall 235

Instructor: Amy Glazier (email: [aglazier@unc.edu](mailto:aglazier@unc.edu), website: <http://aglazier.web.unc.edu>)

Office Hour: Wednesdays 3:00 pm – 4:00 pm, Phillips Hall 237 (or by appointment)

Welcome to Introductory Astronomy Laboratory! This class gives you the unique opportunity to use world-class observing facilities around the globe to perform your own research and learn about the universe. The telescopes you will access for much of your work in this class are used by professional astronomers and astrophotographers year-round, and have even produced many of NASA's Astronomy Pictures of the Day! ([apod.nasa.gov](http://apod.nasa.gov))

### General Information

The majority of the labs in this class will be completed on a computer. Because of this, *it is your responsibility to bring a working laptop to class every week*, as well as any other materials listed in the week's lab description.

Please arrive on time, having read the lab materials for the week's lab (see "Quizzes"). If you are unable to attend this lab section in a particular week, please let me know in advance and arrangements can be made for you to attend a different section. Please do not attend another lab section without notifying me and/or that section's instructor first.

Know that I am here to help you learn! If you have questions about the lab, astronomy in general, life, the universe, everything—please do not hesitate to ask. My goal in this class is for you to gain a richer understanding of the universe and our place in it.

### Important Websites

- WebAssign: <http://www.webassign.net/>
- General lab information: <http://skynet.unc.edu/ASTR101L>
- Video tutorials: <http://skynet.unc.edu/ASTR101L/index.php?content=vids>
- Skynet: <http://skynet.unc.edu>
- Afterglow: <http://afterglow.astro.unc.edu/>
- Stellarium: <http://www.stellarium.org/>

### WebAssign and Labs

There will be no formally written lab reports. Instead, all lab submissions and instructions will be on WebAssign, which allows you to enter your answers in an interactive form. You must purchase a subscription to WebAssign; the UNC Student Stores sells WebAssign access for \$78, but **it's cheaper to purchase directly from WebAssign (\$65)**. Once you have your WebAssign subscription, go to the URL for WebAssign given under "Important Websites" and click "ENTER CLASS KEY" at the top of the page. Enter the following code: **unc 6339 7289**, then log in with your account.

Satisfactory completion of each lab will include:

- Briefly answering all questions in the lab
- Uploading all requested images and graphs
- Briefly discussing your results and any sources of error

### Late Policy

**Labs are due by 11:00 am by Friday of the week when the lab is due** (except Lab 8). Late labs will not be accepted. That being said, if something happens that will prevent you from finishing a lab, please let me know as soon as possible. I may request documentation for special cases.

**Note:** If requested, UNC Health Services will give you a letter saying that they cannot give letters to instructors explaining medical excuses for assignments. This non-letter suffices as a letter of excuse.

### Quizzes

There will be a short, 5-question quiz at the beginning of each lab. The purpose of these quizzes is to ensure you have read the material for the lab and to make sure you understand the day's activities, and they should be straightforward if you have prepared for them by reading the lab. You will not be able to take the day's quiz if you arrive after the rest of the class has done so, and missing a quiz will result in a score of zero for that quiz, so be sure to arrive on time for lab. Your cumulative quiz score will be weighted equal to one full lab in your final grade.

### Extra Credit

Each semester, I offer a small number of short assignments that can be completed for extra credit. These may include imaging and describing an object not previously observed in class; attending an astronomy-related lecture and writing a short reflection on what you learned from it; and/or taking color images of astronomical objects (I will teach you how to do this). More information will be provided on WebAssign after we have had the first couple of lab sessions. **Note that completing all extra credit assignments will earn enough points to make up one (1) quiz grade.**

### Grading Policy

**All labs will be graded on a curve.** Don't worry on account of whatever number WebAssign displays when you submit your lab for the final time. WebAssign can only count questions submitted, and not all questions can be completed on every lab, so the number it gives you has little meaning. Your letter grade will be calculated as the number of standard deviations that your number score falls from the mean score for the class. The distribution will be in terms of point totals, NOT percentage. Each lab (and your cumulative quiz score) is weighted equally, and so comprises 11% of your total grade. Thus, each missed lab is equivalent to the loss of a full letter grade. *Extra credit is not part of the curve.*

You may work in groups, but each person must submit their own answers through WebAssign. Raw data can be the same between group partners, but your short answers, essays, sample calculations, graphs, final images, etc., must be your own. The UNC Honor Code applies in this class as in all classes (see <http://honor.unc.edu/> for reference).

If you are unsure what constitutes appropriate group work or appropriate behavior in this class, please ask me—I am happy to answer your questions. It's far better to ask for and receive clarification than to make a mistake that could have been avoided, and there is no such thing as a stupid question!

# Course Schedule

Week	Date	Lab topic	Lab Due (Date)
1	Aug. 26	Lab Orientation	-
2	Sep. 2	<b>Labor Day – No Lab</b>	-
3	Sep. 9	Lab 1: Intro to Skynet (at Morehead Observatory)	-
4	Sep. 16	Lab 1: Intro to Skynet (continued)	-
5	Sep. 23	Lab 2: Earth and the Seasons	Lab 1 (Sep. 27)
6	Sep. 30	Lab 2: Earth and the Seasons (continued)	-
7	Oct. 7	Lab 3: Galilean Revolution	Lab 2 (Oct. 11)
8	Oct. 14	<b>Week of Fall Break – No Lab</b>	Lab 3 (Oct. 16)
9	Oct. 21	Lab 4: Distance Ladder I – Parallax	-
10	Oct. 28	Lab 5: Distance Ladder II – Standard Candles	Lab 4 (Nov. 1)
11	Nov. 4	Lab 6: The Great Debate	Lab 5 (Nov. 8)
12	Nov. 11	Lab 7: Rotation Curve and Mass of the Galaxy	Lab 6 (Nov. 15)
13	Nov. 18	Lab 8: Hubble’s Law	Lab 7 (Nov. 22)
14	Nov. 25	<b>Thanksgiving Week – No Lab</b>	Lab 8 (Nov. 27)
15	Dec. 2	<b>End of Classes – No Lab – Extra Credit Due</b>	-
16	Dec. 9	<b>Finals – No Lab</b>	-

## Directions to Morehead Observatory

