Astronomy 113 - Hands on the Universe

Basic Information

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Syllabus: This document
Web Page: http://www.astro.wisc.edu/~townsend/static.php?ref=astro-113-F10
Classroom: 3521 Sterling Hall
Sections:
- *001* — Tuesday 1:20pm-3:15pm
- *002* — Tuesday 7:05pm-9:00pm
- *003* — Thursday 2:25pm-4:20pm
- *004* — Wednesday 7:05pm-9:00pm
- *005* — Wednesday 4:55pm-6:50pm
- *006* — Friday 11:00am-12:55pm

Course Overview

Astronomy 113 is a hands-on tour of the visible universe through computer simulated and experimental exploration. During the 14 lab sessions, we will encounter objects located in our own solar system, stars filling the Milky Way, and objects located much further away in the distant reaches of space.

The combination of Astronomy 113 with Astronomy 100 or Astronomy 103 satisfies the Quantitative Reasoning B requirement.

Class Requirements

You will need to have a paper copy of the **lab manual** (which can be purchased from the Social Science Copy Center, Room 6120 Social Science Building, or downloaded and printed from http://www.astro.wisc.edu/~townsend/resource/teaching/astro-113-F10/manual.pdf). There is **no textbook** for Astronomy 113, but your textbook for Astronomy 100 or 103 will be helpful when preparing for the labs and taking the quizzes.

You will also need to purchase a new Science Notebook 77-610 (Roaring Springs), available at the University Book Store (main floor), for use as a dedicated **lab notebook** to record your findings in. You will use this lab notebook during the open book quizzes at the end of the labs, and to prepare lab write-ups. Remember to write **neatly** and keep your answers and notes **organized** (the question numbers in the lab manual will provide a natural way to

put your comments and sketches in order). This will help greatly in answering the quizzes.

A scientific calculator (one that can perform logarithms, trigonometric functions, and exponential notation - even the most basic scientific calculators can perform these functions) will be required to complete some of the labs. There are a small number of calculators available for use in Sterling 3521, but bringing your own will allow you to complete the labs more quickly.

Prep Work

In order to finish the labs on time, it is essential to **read the lab manual before coming to class**. Each lab will come with a set of pre-lab questions that will help prepare you for the lab. These will be handed out the week before the lab starts. They can also be downloaded from the schedule section of the course web page. You should write your answers to these pre-lab questions on a new, empty page in your lab book **after** reading the lab and **before** coming to class. If you have not completed the pre-lab assignment, *you will be asked to leave and return during a later lab session with the completed assignment*.

Office Hours

Friday 1:00-2:55 pm, 3521 Sterling Hall

During this Open Lab period, you will have full access to the computers and lab equipment to **finish labs** that could not be completed during regular lab hours. It will also be possible to take the **quiz** after completing a lab during office hours and to hand in lab write-ups that are due that week.

Outside of regular office hours, meetings with instructors can be arranged by appointment. Email communication is welcomed; we will strive to reply to any messages within 24 hours.

Grading Policy

The overall course grade is composed of seven lab grades, each on a scale from 0 to 5. For five of the labs, these grades will be based on open book/open notes **quizzes** given at the end of the lab. The remaining two labs will be graded based on a **write-up** that is due at the end of the lab. Grades are based on the clarity of your written answers, the coherence of your train of thought, and on the correctness of your result. The schedule below shows you when there is a quiz and when there will be write-ups due.

It is our desire to promote collaborative learning in the lab; hence the course grade scale is set in advance:

- A : 31-35
- B : 26-30
- C : 21-25
- D : 16-20

Intermediate grades (AB, BC etc.) will be used to reward positive performances (extra effort, leadership, contribution to class, etc.) and to respond to inadequate performances (poor or late attendance, lack of effort, etc.). The course is not curved - every student can receive an A. So, you are not in competition with your classmates, and we strongly encourage working together, **except of course during quizzes**.

Not completing a quiz by Friday 2:55 pm of the scheduled week without prior approval by the instructor will result in a zero grade for that lab. The same is true for lab write-ups that are not handed in by Friday 2:55 pm the week they are due.

Lab Schedule

Important Note: In order to avoid splitting topics across different weeks, there will be **no labs** during the initial week of the semester (9/2-9/3). Unfortunately, this means that the schedule below extends two days beyond the official end of the semester (12/15). During the semester, the instructors will be designating a pair of make-up sessions to replace the labs for sections 003 and 006 that would have fallen on these two days.

Dates	Lab Topic	Deadlines[1]
09/07-09/10	Celestial Rhythms: An Introduction to the Sky	Pre-Lab (Celestial Rhythms)
09/14-09/17	Celestial Rhythms: An Introduction to the Sky	Quiz (Celestial Rhythms)
09/21-09/24	The Moons of Jupiter	Pre-Lab (Moons of Jupiter)
09/28-10/1	The Moons of Jupiter	Quiz (Moons of Jupiter)
10/5-10/8	Telescopes	Pre-Lab (Telescopes)
10/12-10/15	Telescopes	Quiz (Telescopes)
10/19-10/22	The Distances to the Stars	Pre-Lab (Distances to Stars)
10/26-10/29	The Distances to the Stars	Lab Write-Up (Distances to Stars)
11/2-11/5	Spectral Classification of the Stars	Pre-Lab (Spectral Classification)
11/9-11/12	Spectral Classification of Stars	Quiz (Spectral Classification)
11/16-11/19	The Universe circa 1900	Pre-Lab (The Universe ca. 1900)
11/23-11/26	Thanksgiving Recess	
11/30-12/3	The Universe circa 1900	Lab Write-Up (The Universe ca. 1900)
12/7-12/10	The Expansion of the Universe	Pre-Lab (Expansion of The Universe)
12/14-12/17	The Expansion of the Universe	Quiz (Expansion of the Universe)

[1] Deadlines occur as follows:

- *Pre-Labs* are due at the *beginning* of the lab session
- *Quizzes* are due at the *end* of the lab session
- *Lab Write-Ups* are due at the *end* of the lab session