Syllabus

Course Objectives:
We will explore some highlights of modern astronomy, focusing on the subject of cosmology -- the evolution of the universe, past and future. To get there, we will need to study the life and death of stars, galaxies, observational methods in astronomy, and some basic scientific underpinnings, such as nuclear physics and relativity. We will do this qualitatively -- the only math skill expected is understanding scientific notation -- see the Math Expectations page in Module 1.

Here are some specific learning objectives:

- Explain astronomical observations in terms of underlying physical processes
- Apply your knowledge to interpret observations novel astronomical situations
- Combine knowledge from different topics to interpret new observations
- Apply your knowledge to judge the plausibility of astronomical claims from the news

Main Topics:
The Canvas modules are organized according to the major topics we will study:

- Stars - How they work ("solar energy is nuclear")
- Stars - Their fate ("red giants, white dwarfs, black holes, supernovae, and all of that")
- Galaxies and cosmic distances
- Relativity ("Einstein's vision: space, time, and warped spacetime")
- Gravitational Waves - the new astronomy
- The Expanding Universe - worlds at the edge of time
- The Early Universe - bringing together the very small and very large

Please see the Timeline for an overview of the schedule and deadlines.

Course Navigation:
Course content is accessed via the ASTR 123 Canvas site. Simply click the Home tab to return to the course layout, which consists of modules, each of which focuses on a major topic. Lectures are recorded using Panopto and are linked from the Canvas Home.

Go to the "Start Here" video for the course overview and instructions from Prof. Frey.

Office hours:
Regular office hours via Zoom -- see the Contacts page (https://canvas.uoregon.edu/courses/223455/pages/contacts) for hours and connection information.

Email: rayfrey@uoregon.edu (mailto:rayfrey@uoregon.edu).

Textbook:

The textbook provides supplemental content. (The main content is from the lectures, quizzes, etc)
The textbook is free and online:


Here are some additional notes about the textbook:

You can use whichever online format you want. Web view is recommended -- the responsive design works seamlessly on any device. Alternatively, you can download a pdf of the entire textbook. If you want a print version and buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

Astronomy from OpenStax, Print ISBN 1938168283, Digital ISBN 1947172247,

Course content and assignments:

- Lectures. The recorded Panopto lectures and associated slides provide the core content for the course. Note that the slides are also provided separately as pdf files so you can review or preview material independent of lectures.
- Textbook. The textbook is used to supplement the lectures.
- Participation quizzes. These are paired with lectures and are designed to help students test their understanding. Students receive credit for completing them, not for correct responses. They may be retaken -- this might be helpful for studying for tests/exams.
- Sequencing. To complete a module, the sequence of lectures and participation quizzes must be completed in the given order.
- End of module tests. Multiple choice questions similar to those in the participation quizzes.
- Module discussions. One question or topic to consider and answer in a forum with your discussion group.
- Summary exams. There are three of these, one each for Modules 2-4, 5-6, 7-8, with multiple choice questions.
- Writing assignment. See the description (https://canvas.uoregon.edu/courses/223455/pages/writing-assignment). Due near the end of term. The topic for your essay will need to be chosen by Sep 8 and shared in the Module 6 discussion.


**Grading:**

- participation quizzes (32): 15%
- end of module tests (7): 35%
- summary exams (3): 30%
- module discussions (8): 10%
- writing assignment (1): 10%

You can monitor scores in the Canvas grade book. But note that the points in different categories are not directly comparable. The points in each category will be summed separately and applied to your final grade according to the above percentages. You can expect letter grades to approximately follow the following: A: 88% or more; B: 75% or more; C: 60% or more, where the % number is based on the total points after combining all of the grading categories. +/- grades (e.g. B+) will also be given.

**Late policy:** Tests, exams, and discussions have deadlines. Please pay attention to these. A late penalty of 20% will be assessed for each late day. This course is concentrated in a very short time. **To do well you must stay on time.**

**Accessibility:**

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center at 541-346-1155 or uoaec@uoregon.edu.

**Expect and Respect Diversity:** All classes at the University of Oregon welcome and respect diverse experiences, perspectives, and What is not welcome are behaviors or contributions that undermine, demean, or marginalize others based on race, ethnicity, gender, sex, age, sexual orientation, religion, ability, or socioeconomic status. We will value differences and communicate disagreements with respect. We may establish more specific guidelines and protocols to ensure inclusion and equity for all members of our learning community.

**Academic Integrity:**

The University Student Conduct Code (https://dos.uoregon.edu/conduct) defines academic misconduct, which includes unauthorized help on assignments and examinations and the use of sources without acknowledgment. Academic misconduct is prohibited at UO. I will report misconduct to the Office of Student Conduct and Community Standards—consequences can include failure of this course.

I have set up the course to make cheating difficult. It will be much, much easier to simply learn the
material. Quizzes, tests, and exams are open book and notes. Tests and exams are timed and and are randomized so that no two exams are the same. You are encouraged to study and discuss the course material with other students. But the work you submit must be your own.