Modern Astronomy, 2024 Fall

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Class time: Thursdays from 1:00pm-2:50pm; lectures will be broadcast on zoom (or classin) and recorded.

If we use zoom:
https://us06web.zoom.us/j/84888254853?pwd=knGiyT1nyiuYMe4arbOFQLmXnmZM3b.1
Meeting ID: 848 8825 4853
Passcode: 8888

Office Hours: I am always happy to chat; please email me if you would like arrange an appointment.

Astronomy Picture of the Day: https://apod.nasa.gov/apod/astropix.html

Course Description: Astronomy is the science that tells us about our universe. How did structures form? How did life develop? Are we alone? These questions are as old as civilization, peoples have formed their own answers to these questions. Astronomy lets us understand our world by designing experiments through observations and simulations.

This is a 2-credit course designed for non-majors. There will be some basic math and data analysis.

The primary language for this course is English. All lectures, discussions, homeworks, will be in English. I understand that many of you are not used to communicating in English, and that this may be challenging at times. Please ask me to repeat things, speak slower, or come to office hours if you need help. Always feel free to interrupt me if you have questions.

Course Textbooks and Resources: There is no textbook, but many textbooks are available online as useful resources. I may point to them sometimes. A free online book, *Astronomy*, by Fraknoi, Morrison, Wolff, et al., is very useful, and some lecture notes are drawn from these chapters: https://openstax.org/details/books/astronomy
The Cosmic Perspective by Bennett, Donahue, Schneider, and Voit is also a good textbook.

This class offers several different ways to learn about astronomy. The lectures provide an overview of a topic and provide you with an opportunity to ask about topics that you are curious about, or if you are confused about something. For students who learn more from reading than from lecture, the textbook provides a useful and up-to-date description of all topics covered in this class. The homeworks provide an opportunity to dig into more detail and think about questions in a different way, intended to help develop critical thinking skills. Some questions are not closely connected to lectures. The projects and presentations encourage you to experience a small taste of astronomy research as well as English-language presentations.

Grades:

Homeworks (3.5 total): 40%; the homeworks are problems I find interesting and are related to concepts described in the online book and sometimes in class; attending class may not always help with the homework

Essays and class presentation: 60%; the first project will be a description of some concept, object, or person. The second project will be a citizen science project. These projects should be completed individually.

Absence from class:

This class does not have an attendance policy. **If you are sick, please do not attend class and get others sick!** I understand that many of you have other priorities in school and life. Each lecture will be available on zoom (or Classin) and recorded.

All assignments are due on-time, usually at the beginning of class. Assignments turned in late will not be accepted.

Academic Integrity: You are allowed to discuss homeworks together and use online resources, as long as these sources are acknowledged. However, the final assignment should represent your own work, and copying will not be tolerated. If you work with others, you must state this explicitly in your work. If you use online resources, you must cite them. Failure to do so is considered cheating. The first offense will result in a 0 on your assignment. Any subsequent violation will result in a failure for the course. Plagiarism (copying text) is unacceptable.

LLMs, like ChatGPT, should not be used for assignments, though it may be a valuable part of your future careers. Wikipedia is a useful resource to find information. However, it should also not be used as a primary resource.

Approximate Class Schedule	
Class 1:	Syllabus and Introduction to Astronomy; Light and scales
Class 2:	Stars I/Main Sequence+Sun; Stellar Evolution
Class 3:	Stars I (continued)
Class 4:	Stars II: Star Formation and Stellar Death
Class 5:	Stars III: Exoplanets
Class 6:	Galaxies I: The Milky Way
Class 7:	Galaxies II: Formation & Evolution
Class 8:	The Big Bang and Cosmology
Class 9:	Black Holes and Relativity
Class 10:	Our Solar System, overview; Terrestrial Worlds
Class 11:	Terrestrial Worlds and the Earth
Class 12:	Gas Giant Planets
Class 13:	Solar System debris
Class 14:	History of Astronomy and Philosophy of Science
Class 15:	Telescopes, Future of Astronomy, Review
Class 16:	Life in the Universe