Course Syllabus


The link above contains the UO policies you should be aware of. One important rule is that attendance on the first day of classes is NOT REQUIRED.

Since these rules are the same for all UO classes, I'm not going to copy them to this syllabus. Please refer to the linked page above for details.

Description

ASTR 121 is an introduction to our Solar System for non-science majors. If you're a science major, you'll be a tiny minority in this class!

Historically, astronomy was the first science, but it is also a very modern science. Our understanding of the contents, formation and evolution of the Solar System has exploded in recent decades, mainly due to numerous missions/probes by NASA and other space agencies to all of the eight planets and beyond. The study of the characteristics of the other planets has provided tremendous insight into the understanding of how our own planet (Earth) operates and changes under mankind's influence. The purpose of this course is to educate the student on the basic science behind our exploration of the Solar System so you may make informed choices as future/current voters on issues of our environment and the future of science in this country.

- The specific goals of this class are to understand
  1. the basic science that underlies astronomy (the forum is the solar system),
  2. the properties of the objects that make up our solar system,
  3. how the evolution of other planets has an impact on the choices we make to manage our own environment.

- The interplay between technology (telescopes, space observatories) and knowledge gained about the Universe is a key theme to the course.

- In addition, this course traces the history of solar system discoveries in order to explore how the scientific method works and how civilization has gained from the progress of science and technology. The interplay between technology (telescopes, robotic space probes) and knowledge gained about the Solar System is a key theme to the course.
The laws governing the Universe are formulated in the language of mathematics, but the course will not go beyond high-school level algebra. Astronomy is a very visual science, and we'll often rely on animations and computer simulations. The level of the class assumes no prior knowledge of science whatsoever, but it will require quantitative reasoning.

It will help you succeed in this course if you come to class with a desire to dig deeper into the causes of things you see around you. Words you'll be hearing a lot are: "why," "how" and "what if" - because curiosity is what makes scientists tick.

This is an overview of the concepts that will guide the course. We'll work our way from the inside out:

1. Early Astronomy from Antiquity to Kepler
2. Newtonian Mechanics
3. Radiation and Spectra
4. Astronomical Instruments
5. Earth and Moon
6. Planetary Science, Earth and Mars
7. Cratered Worlds
8. Space probes to the Moon and inner planets
9. Exploring the outer Planets and their Moons
10. The Outer Reaches, and Origins of the Solar System

Required materials
The OpenStax textbook "Astronomy" is linked here:

https://openstax.org/details/books/astronomy

You'll need a calculator for some of the online assignments (it doesn't have to be a scientific calculator). If you don't have one, you can type most calculations directly into the search field of a modern browser such as Google Chrome. If you prefer a more traditional interface, here is a free online scientific calculator:

https://pages.uoregon.edu/jenscls/physicsCalculator.html

Administrative details

Instructor: Prof. Jens Noeckel (noeckel@uoregon.edu),

Office hour: I'll publish weekly posts on the Canvas Discussion board. Fridays during lecture time I will answer homework-related questions. To contact me with issues that you don't want to post publicly, send me a message via email or from the Canvas Inbox. Don't use the discussion feature within Panopto's video player to contact me. The system doesn't notify me of new messages posted there.

In-person lectures

Lectures are in room 100, Willamette Hall, 3-3:50pm MWF. Attendance is optional and doesn't affect your grade. All lecture materials, including videos and assignments, are available online through Canvas.

During in-person lectures, I'll go over the contents of the lecture videos, show (optional) additional material and demos, and open the floor for discussions and questions.

Video lectures

All the lectures that are relevant for the grade will be posted via the video delivery platform Panopto.

I will post each lecture as an assignment with a corresponding link and deadline on Canvas. It's important not to fall behind.

To access the video lectures, follow the link from the corresponding Canvas assignment! Don't try to find the lecture video on the Panopto homepage or from the Panopto app. If you don't follow the link from Canvas, your in-lecture quiz results won't get transferred to the Canvas grade book and you'll have to re-do the lecture quizzes. This is a limitation of the Panopto integration with Canvas.

Together with the videos, each course module also contains a page where I post the lecture slides as PDF. If you have a note-taking app, I recommend importing the PDFs so you can annotate them. Many people find that taking notes helps them absorb the material better.
You can always re-watch the lectures later. You can also set bookmarks in the Panopto viewer to remind yourself of specific points in the lecture you may want to revisit.

**Getting help**

This is a course for non-scientists, so if you have a question about the material it's very likely that you're not alone. So don't be shy about asking questions, including about the assignments.

Asking questions or participating in discussions on Canvas is a good thing, but it has no effect on your grade in this course.

Each problem set (not the reading quizzes) will include a link to a Discussion thread for that homework. I'll monitor that discussion for questions. In that thread, I may also post a short video with hints on how to do the problems.

If you have questions about the reading, you're welcome to bring it up in class, or open a new thread in the Discussion section on Canvas.

If you see a question in the discussions or in class that you feel you can answer or add to, please don't hesitate to contribute. Participation doesn't affect your grade.

If you have a question that you'd prefer to ask in private, it's best to contact me via Canvas message because that gets sent to my email with a subject line identifying it as course-related.

If you have a math problem or other issue that is best discussed with a screenshot, you can email me at noeckel@uoregon.edu and attach your work to the email. That's the easiest way for me to give you personalized feedback.

*Don't* use the discussion feature within Panopto's video player to contact me - the system doesn't notify me of new messages posted there.

**Grading**

Grades for the course will be based on quizzes in the videos and in separate assignments, as well as a final exam that will also be held online through Canvas. **There will be no midterms.** The relative weights will be as follows:

- In-video quizzes: 10%
- Reading quizzes: 30%
- Problem sets (quantitative quizzes): 40%
- Final exam: 20%

I will drop your lowest 3 reading quiz scores and your lowest quantitative quiz score in computing your final grade (missed quizzes count as zero scores).
You're allowed to work together or use external resources to answer any of the quiz questions.

The score for all quizzes is based on the number of correct answers. You don't get points for incorrect answers, but you don't get penalized for them either.

In-lecture quizzes will appear at certain times during the lecture video. The deadline for answering the lecture quizzes is posted under "Assignments". You have two attempts to answer each in-lecture question. This is because I will sometimes make you take a guess between two alternatives. So if you get it wrong the first time, it will not hurt your score because you can then re-do the question and pick the other choice.

Reading quizzes go along with the reading assignments for each module. They are multiple choice. You have only one attempt to answer the reading quiz questions (except for the first reading assignment). This is intended to make you read carefully before answering the questions. The questions are designed to be conceptual and simple, provided that you have read the material.

Problem sets with quantitative questions will be posted separately on Canvas with their own deadlines. I call them "Problem Sets" to distinguish them from the other assignments. You have two attempts to answer each question on a problem set. These problem sets can be multiple choice or may require numerical calculations. The numerical questions can change from one attempt to the next, so you can’t copy the answers from the first to the second attempt!

Late policy for all quizzes:

For any late submission, you get a score that's reduced 80% (i.e. 20% subtraction) per day. This is done automatically in Canvas. I can override this on a case-by-case basis if you have a valid excuse.

Pass/fail grading option: a passing grade requires the equivalent of a C grade on all course work (quizzes, homework, midterms, and final).

Grading scale: the nominal grading scale for this course is below. If the final class average is excessively low, I may apply a curve for a higher average final grade. However, you are guaranteed at least the grade listed below based on your final average; you are not competing with others in the class for your grade.


Note that the total score listed in Canvas for the in-video quizzes is not always accurate: it doesn't show missing scores as zero points. That seems to be a bug in the system. If you have no missing lecture scores, then your Canvas total does give the correct score.

Academic Honesty
Students are expected to abide by university policies on academic honesty, avoiding plagiarism, fabrication, cheating, and academic misconduct. The Student Conduct Code ([https://dos.uoregon.edu/conduct](https://dos.uoregon.edu/conduct)) provides definitions of these terms and explanations of the university policy on the subject. Academic dishonesty will be dealt with severely, as it is disrespectful to your fellow students and your instructor, as well as being against both university regulations and state laws.

**Other resources**

Lastly, the University’s Tutoring and Academic Engagement Center may also be able to assist UO students. I’d suggest contacting them only after touching base with me first. For more information see [https://engage.uoregon.edu/](https://engage.uoregon.edu/)

**Students with disabilities**

If there are aspects of the instruction or course design that result in barriers to your inclusion, please notify Prof. Noeckel (noeckel@uoregon.edu) as soon as possible. You are also welcome to contact Disability Services in 164 Oregon Hall, 346-1155.

**Course Summary:**

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<thead>
<tr>
<th>Date</th>
<th>Details</th>
<th>Due</th>
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<tr>
<td>Fri Jan 7, 2022</td>
<td>📖 Read Chapter 1 (<a href="https://canvas.uoregon.edu/courses/194770/assignments/1190523">https://canvas.uoregon.edu/courses/194770/assignments/1190523</a>)</td>
<td>due by 11:59pm</td>
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<td>Sat Jan 8, 2022</td>
<td>📖 Lecture 1 (Watch by midnight, Saturday) (<a href="https://canvas.uoregon.edu/courses/194770/assignments/1190570">https://canvas.uoregon.edu/courses/194770/assignments/1190570</a>)</td>
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<td>📖 Read 3.1 and 3.2 (<a href="https://canvas.uoregon.edu/courses/194770/assignments/1190545">https://canvas.uoregon.edu/courses/194770/assignments/1190545</a>)</td>
<td>due by 11:59pm</td>
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