ASTR 1040

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Fall
Year: 2025
Course Prefix: ASTR
Course and Section #: 1040-X03
Course Title: Elementary Astronomy
Credits: 3

Course Description

This course introduces astronomy and cosmology. It provides a physics-based overview of the solar system, the lives and deaths of stars, galaxies, and the evolution of the Universe. It explores the basic principles of physics and light, the tools of astronomy, and interesting concepts such as the Big Bang and black holes.

Course Attributes

This course has the following attributes:
☒ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☐ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Cody Peterson

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Describe the process of science and tools by which astronomers gain knowledge about the universe, including how our understanding of the universe, its scale and our place in it has changed over time.
2. Make connections between the earth's daily and yearly motions and their experience of the sky, including positions and motions of celestial bodies, seasons, phases of the moon, and eclipses.
3. Recognize how underlying physical laws govern the formation and evolution of stars, planetary systems, galaxies, and the universe as a whole.
4. Apply basic principles of physics and light to the interpretation of astronomical observations and phenomena.
5. Identify scientific information conveyed in various forms, including simple equations, numbers, diagrams, charts, and graphs.
6. Answer conceptual questions with correct terminology in the fields of stellar astronomy, cosmology, and solar system science.

7. Apply concepts learned in the course to observations of the real night sky, current news and events, and representations of astronomy in the media and popular culture.

Course Materials and Texts

Mastering Astronomy Course Bundle

Bundle includes:

- Pearson Mastering Astronomy Homework System
- Digital access to *The Essential Cosmic Perspective, 8th Edition*
- Pearson Study Area including course media, summaries, practice quizzes, etc.

Course Requirements

Course Assignments, Assessments, and Grading Policy

- **Anonymous Pre/Post Test: 30 pts** - Test of student knowledge before and after course completion.
- **Syllabus Quiz: 10 pts** - Quiz to ensure student understanding of syllabus policies.
- **Mastering Astronomy Homework:** 500 pts - Practical and conceptual questions based on textbook.
- **Astronomy in the News:** 75 pts - Reading and discussion of astronomy news and controversial issues.
- **Activities: 60 pts** - Quick Canvas demonstrations to reinforce principles discussed in lecture.
- **Discussions: 150 pts** - Weekly prompt discussed among classmates.
- **Essays: 175 pts** - Midterm and final essay demonstrating knowledge of course learning outcomes.
- **Unit Exams: 500 pts** - Three unit exams of 100 pts and a final comprehensive unit exam of 200 pts.

This is a "total points" class. There is a total of 1,500 points available throughout the course.
Your grade is determined by the total points you earn through the course. Grades are not curved or adjusted, so it is possible for each student to earn an "A" grade in this course. **Note:** Final grades are not rounded, the grade you receive is based on the exact percent score earned.

Grade:

A	≥93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	63%
D-	60%
E	<60%

Recommended Reading Assignments and General Subject for Each Day

Week	Topic(s)	Assigned Textbook Chapter(s)
1	Class Introduction, Motion of the Sun & Stars	Chapter 1, Chapter 2.1-2.2
2	Motions of the Moon and Historical Astronomy	Chapter 2.3-2.4, Chapter 3
3	Physical Laws and Light & Matter	Chapter 4, Chapter 5.1-5.2
4	Light and Telescopes	Chapter 5.3
5	The Sun and Stellar Properties	Chapter 11 and Chapter 12
6	Life of Stars	Chapter 13 and Chapter 14.1-14.2
7	Black Holes	Chapter 14.3-14.4
8	The Milky Way Galaxy	Chapter 15
9	Galaxies, Dark Matter, Energy and the Universe	Chapter 16, Chapter 18
10	**Spring Break – Holiday**	
11	The Beginning of the Universe	Chapter 17
12	Formation of the Solar System & Earth	Chapter 6, Chapter 7.1, 7.5
13	The Moon and Terrestrial Planets	Chapter 7.2-7.4
14	Jovian Planets, their Moons and Rings	Chapter 8
15 and 16	Asteroids, Comets, Dwarf Planets, Exoplanets, and Life in the Universe	Chapter 9, Chapter 10, Chapter 19
16 and 17	**Unit Exam 4 and Final Essay**	

Required Course Syllabus Statements

Generative AI

*adapted from Temple University statement on AI in classes.

AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your

own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools (e.g. ChatGPT, Google Bard, etc.) is permitted in this ASTR 1040 course for the following activities:
• Brainstorming and refining your ideas.
• Fine tuning questions you have about current physics or astronomy research.
• Finding information for any assigned writing topic(s).
• Drafting an outline to organize your thoughts; and
• Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:
• Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat.
• Writing a draft of a writing assignment.
• Writing entire sentences, paragraphs, or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contains misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software
☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.
To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.

Student Conduct
Academic integrity is a basic principle which requires that students take credit only for ideas and efforts that are their own. Cheating, plagiarism, fabrication, and other forms of academic dishonesty are often defined as the submission of materials in assignments, exams, or other academic work that is based on sources that are prohibited by the faculty member or in ways that do not properly cite the source of a student's ideas and content. Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*Links to an external site.
Cheating is the act of using or attempting to use or providing others with unauthorized information, materials or study aids in academic work. Cheating includes, but is not limited to, passing examination answers to or taking examinations for someone else, or preparing or copying others' academic work.
Plagiarism is the act of presenting another person's ideas, research or writing as your own.
Fabrication is the use of invented information or the falsification of research or other findings.
If students are discovered to be cheating, the relevant grade will be a zero and you will be reported to the University's Judicial Affairs.

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. All planetarium videos are filmed using our Digistar system and are also proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course.

University Resources are found in the syllabus in Canvas