ASTR 4 – Solar System Astronomy
Winter 2023

Instructor: Caitlin Kepple (she/they)
Instructor email: kepplecaitlinmarie@fhda.edu
In-Person Office hours: Wed/Thurs (3:45-5:00pm), or by appointment
Office Location: S46A

Class days/times: Asynchronous online
Online help sessions: Fridays, 12:30-2:00 pm, Zoom link: https://fhda-edu.zoom.us/j/5540578097

Welcome to Solar System Astronomy! In this course, we will explore current and historical understandings of astronomy from a variety of perspectives. We will use real-world data to build knowledge and skills around astronomy as a science, while also interrogating the traditional view of science as an "objective" pursuit. We will draw on knowledge from several disciplines and cultures to help us understand the forces that shape our view of science as individuals and broadly in the US.

Course Texts
-*Astronomy*, by OpenStax (available in print for $60 or as a free PDF here)
-Selected readings available on Canvas each week

Important Dates
Jan 21: Last day to add classes
Jan 22: Last day to drop classes with no record
Feb 17-20: Presidents' Holiday (no classes)
March 3: Last Day to withdraw ("W") from courses
March 27-31: Final Exams

Inclusivity Statement
To give us a starting point for creating a welcoming classroom space, we will refer to the Inclusive Astronomy Recommendations, and actively work to improve on the practices they recommend. To that end, we will center the experiences of historically marginalized groups in astronomy using an intersectional lens. We will draw on different ways of knowing and learning astronomy from Indigenous identities, women of color in astronomy, the LGBTQ+ community, and the disabled community. Because this is a non-exhaustive list of (historically) marginalized identities in astronomy, we will work as a class to further identify how we are maintaining internalized biases about scientific knowledge and what perspectives are being left out of the conversation.

Course Learning Goals
Throughout this course, we will pursue the following set of skills related to studying astronomy:

- Appraise the benefits to society of planetary research and exploration
- Compare and contrast the development of planetary systems and of the major planet types, including those factors that have led to Earth's unique characteristics
- Evaluate astronomical news items or theories concerning solar system astronomy based upon the scientific method

- Describe ethical dilemmas arising out of contemporary scientific research and application from a variety of perspectives among local and/or global communities
- Critically evaluate scientific phenomena from a variety of sources and use that information to articulate the social and scientific implications of studying that phenomena
- Understand and articulate the relevance and impact of astronomy research on an individual, community, and societal level; this process includes drawing on personal experiences with science and working with others to construct a shared understanding of astronomy research

Grade Breakdown

Grades are based on a combination of participation, homework assignments, in-class activities, and lab assignments that are described more below. The graded assignments are constructed and distributed so that folks can succeed in the class via a wide variety of methods to display their understanding.

The grade breakdown for the course will be

Discussion Posts (2/week, lowest dropped) - 20%
Reflections (1/week) - 10%
Homework (8 total) - 40%
Quizzes (4 total, lowest dropped) and Final Exam - 30%

Late work policy: If you foresee a need to extend a due date for any assignment, *please email me as soon as you know you will need an extension* and we will come up with a timeline that is workable for the both of us. Otherwise, discussion posts will be marked down 25% if posted more than 1 day after the due date. Homework assignments will be marked down 5% if 1-10 days late, and 10% if >10 days late. Quizzes can be taken late for half credit up to 1 week after the submission deadline.

Course Structure

Our course is designed so that everyone can construct their astronomy knowledge from the ground up and access the material with a variety of learning styles, starting with reading, videos, and discussions before moving on to the homework and quizzes.

Reading and discussion

- You can find the assigned reading for each week on Canvas, which will usually consist of a chapter from the *Astronomy* text and also a separate article. I will also post one or two video recordings each week, which will help bolster what you read in the text.
- Discussions are a chance for us to practice applying the concepts with our peers in a low-stakes setting. By Tuesday night (11:59pm) each week, I ask that you complete one discussion entry on Canvas, which is graded for completeness and timeliness. The second component will be interacting with one of your peer's posts by Thursday night (11:59pm) each week.

Homework

- Homework in this class serves two purposes. 1: It will go into more depth on the concepts and skills that are covered in the readings and videos. 2: They are your *best* reference in studying for quizzes. That being said, make sure you complete them as thoroughly as possible (you will thank yourself later when preparing for quizzes). Canvas is the best place to check for updates on due dates and times.

Weekly Reflections

- After you have completed all of the required reading and assignments for the week, this is your chance to put some of your own voice and personal perspective into what you have learned. Whereas the other required assignments are meant to go into the "nitty gritty" of the content, reflections are meant to be more introspective about how *you* have connected with the material for that week.

Quizzes and Final exam

- There will be four quizzes throughout the course of this term (lowest score dropped) and one comprehensive final exam. Quizzes will be available for 48 hours, generally between Tuesday-Thursday on the week they are due. Once opened, you will have 1 hour to complete the quiz, but it is designed to be finished in 20-25 minutes. Each quiz will cover the *previous 2 week's* material. The final exam will be worth two quizzes and is a required component for the course.

A note on technology

Modern astronomy is practiced largely using computers and other devices, and therefore some of our activities will require the use of a laptop or desktop computer (tablets not recommended). I will give you at least one week's warning before you will need access to a computer in order to complete the activity. As a reminder, the Library offers equipment checkout on a first-come, first-served basis. Please reach out to me if you foresee a situation in which you will not have a device to work with, and we can work something out.

Academic Integrity

It is essential that everyone construct their own unique narrative of what they have taken away from the course materials. Please do not plagiarize or copy from anyone else's work, in this course or elsewhere. For reference, De Anza College has clear guidelines for students in maintaining academic integrity, which can be found in the Student Code of Conduct.

There are several *free* resources at De Anza to provide extra support, to prevent cheating and plagiarism (listed below). Additionally, please do not hesitate to email me if there is another way I can support your learning that has not already been made available.

Disability access and support

If you have registered with the **Disability Access Services** (DSS; located in Registration and Student Services Bldg, RSS 141; dss@deanza.edu) or need alternate support for creating an accessible learning experience, please do not hesitate to communicate with me about this. DSS staff can meet with students, review the documentation of their disabilities, and discuss the services that De Anza offers and any appropriate ADA accommodations for specific courses. Additionally, I will do whatever I can to ensure these needs are met during your time in my class. Please see this page for information about the computer accessibility lab (CAL) at De Anza.

Student disclosures of sexual violence

De Anza College strives to foster a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender

discrimination. Please note, if you disclose a personal experience as a De Anza student, the course instructor is required to notify the Title IX Coordinator (Laureen Balducci).

To disclose any such violence confidentially, contact the Title IX coordinator using the following forms or by phone at 408-864-8945

- Reporting Sexual Misconduct or Concern
- Contacts Page

Counseling Services

The De Anza Psychological Services office provides a wide variety of counseling services for students or groups **free for students**. Please see their website for their current schedule and list of contacts. They can be contacted at 408-864-8868 or by emailing dapsychservice@deanza.edu.

Resources for Basic Needs

If you or someone you know are in need of housing assistance, food assistance, baby supplies and resources (along with many other services), the Resources for Basic Needs page has a wide range of support for De Anza students and family members.

Math, Science & Technology Resource Center

De Anza's Math, Science & Technology Resource Center has peer tutoring and workshops, found here. Additionally, the Student Success Center can provide help with general skills, writing, Canvas, and much more here. They have Drop-In tutoring via Zoom, or Weekly Individual tutoring (see updates on this for Fall 2022 on their website).

Academic Advising

For more general advice on setting up a study schedule, choosing a major/classes, and navigating other logistics of your degree, you can visit the General Counseling Division here. There are several other resources related to academics and other resources for De Anza students here.

*Schedule subject to change at the discretion of the instructor
**OpenStax Astronomy (OS)

Schedule* of topics

Date	Topics	Reading	Important Dates
Week 1	Syllabus; Community agreements; Intro to astronomy; Units and Math skills	Syllabus, OS Ch. 1	HW 1 Due Friday by 11:59pm
Week 2	Finding resources on campus; Cultural and historical astronomy	OS Ch. 2, Canvas Reading	HW 2 Due Friday by 11:59pm
Week 3	Planetary motion; Gravity	OS Ch. 3, Canvas reading	**Quiz 1**
Week 4	Seasons and Calendars; The Moon	OS Ch. 4, Canvas reading	HW 3 Due Friday by 11:59pm
Week 5	Radiation and Spectra	OS Ch. 5, Canvas reading	HW 4 Due Friday by 11:59pm
Week 6	Telescopes; Science Ethics	OS Ch. 6, Canvas reading	**Quiz 2,** HW 5 Due Friday by 11:59pm
Week 7	Intro to the Solar System	OS Ch. 7, Canvas reading	HW 6 Due Friday by 11:59pm
Week 8	Earth and the Moon	OS Ch. 8, 9	**Quiz 3**
Week 9	Rocky Planets	OS Ch. 10, Canvas Reading	HW 7 Due Friday by 11:59pm
Week 10	Outer Planets	OS Ch. 11, Canvas reading	HW 8 Due Friday by 11:59pm
Week 11	Exoplanets and Life on Other Worlds	OS Ch. 14, 21 selected sections	**Quiz 4**
Finals Week	**2 hour Exam, Open 3/27-28 (48 hours)**		**Final Exam**

Student Learning Outcome(s):

*Appraise the benefits to society of planetary research and exploration.
*Compare and contrast the development of planetary systems and of the major panet types, including those factors that have led to Earth's unique characteristics.
*Evaluate astronomical news items or theories concerning solar system astronomy based upon the scientific method.

Office Hours:

W,TH	03:45 PM	05:00 PM	In-Person	S46-A
F	12:30 PM	02:00 PM	Zoom	