

ASTR 4 – Solar System Astronomy

Winter 2024

Class days and time: T/R, 1:30-3:45pm

Class Locations: Tuesdays in ADM 119, Thursdays in PLT

Instructor: Caitlin Kepple (she/they)

Instructor email: kepplecaitlinmarie@fhda.edu

Office hours: Tu 10:30am-12pm in PSME Village Space, S55

Wed 3:45-5:15pm in ADM 119

Th 10-11am on [Zoom](#)

Welcome to Solar System Astronomy! In this course, we will explore current and historical understandings of astronomy from a variety of perspectives. We'll 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 also 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 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
- Understand and articulate the relevance and impact of astronomy research on an individual, community, and societal level
- Draw on and integrate lived experiences related to science to construct a shared understanding of astronomical knowledge and research

Inclusivity Statement

As a starting point for creating a welcoming learning environment, we will refer to the [Inclusive Astronomy Recommendations](#) and actively work to improve on the practices they recommend. Materials in this course will strive to center the experiences of historically marginalized groups in astronomy using an intersectional lens. We will draw on different ways of knowing and learning astronomy, both historically and today. Additionally, 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 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 15: MLK Holiday (no classes)

Jan 21: Last day to add classes
Jan 22: Last day to drop classes with no record
Feb 16-19: Presidents' Holiday (no classes)
March 1: Last Day to withdraw ("W") from courses
March 25-29: Final Exams

Grade Breakdown

Grades are based on a combination of note-taking, in-class assignments, a larger project, and final exam grades—each of which is described more below. Each assignment type is constructed so that success in the class is possible via a wide variety of methods (not just one make-or-break assignment).

Pre-Class Assignments (lowest 2 dropped) - 15%
APOD Presentation - 5%
In-class Work (lowest 2 dropped) - 20%
Bi-weekly Wrap-up Quiz - 25%
Special Interest Project - 20%
Final Exam - 15%

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.

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 short in-class assignments before moving on to the quizzes and special interest project. For more details, rubrics and make-up options for each item, see the Canvas page.



Pre-synchronous work (15%)

- You can find the assigned videos and reading for each class session on Canvas (the schedule below is only tentative). As you complete the videos and readings, you should take notes and complete a brief assignment *before* coming to class. **Treat this as you would a homework assignment!**



APOD Presentations (5%)

- Early in the quarter, you'll sign up to do a short presentation of an Astronomy Picture of the Day or "APOD" image of your choosing. Each class day (starting in Week 2), a couple of people will present their chosen picture and what they found interesting about it. Sign-ups will be during the first week of class.



In-class Activities (20%)

- We will have in-class activities every class day (thus attendance is important!). These will mostly be submitted in group format, though sometimes individually on Canvas. They are graded on completeness (70%), correctness (20%), and timeliness (10%). If you are absent, you can still complete these, albeit without the aid of the instructor or your peers to help you.



Bi-weekly Wrap-up "Quizzes" (25%)

- Wrap-up Quizzes serve two purposes. 1: A low-stakes way to help you gauge your own progress with the material 2: They are your *best* reference in preparing for the final. Every two weeks (plus the end of Week 11), you'll complete a short quiz

and have a peer grade it for you afterward. Then, you will note any corrections to questions you missed and complete the rest of the assignment on Canvas. **Note that the first portion is completed while in class, and then a second portion submitted on Canvas.**



Special Interest Project (20%)

- During the second half of the quarter, you'll choose a topic to research and present about in the last two weeks of class. This may be done solo or in a pair. The topic must relate to Stellar Astronomy in some way, but otherwise is fairly open-ended. More details to come in Week 3.



Final Exam (15%)

- We will have one cumulative final exam at the end of the quarter during finals week. The format will be the same as quizzes, with multiple choice/fill in the blank/short-answer style questions. You will need a calculator, which can be borrowed from the Campus [Library](#).

A note on technology

As you can see from the above descriptions, this course relies on Canvas quite a bit, which is much easier to use on a laptop or tablet. In case you weren't already aware, the [Library](#) offers equipment checkout on a first-come, first-served basis. Please reach out to me if you are having issues accessing technology, as we want to get the issue resolved as soon as possible.

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. Any materials that I find have been plagiarized will be marked with a zero for that assignment and further action may be taken. 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 Support 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 (Lauren 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 *free* 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 as we progress through the quarter
 **OpenStax Astronomy (OS)

Schedule* of topics

Week	Notes	Reading	Important Dates
Week 1	Day 1: Form working groups; Intro to astronomy, APOD Signups	Syllabus	
	Day 2: Community agreements; Practice with Units & the Night Sky	**OS Ch. 1	
Week 2	Day 1: Cultural and historical astronomy	OS 2.1-2.3	
	Day 2: Observing Skills	OS 2.4, Canvas Reading	
Week 3	Day 1: Planetary motion	OS 3.1-3.3	Week 1-2 Wrap up Quiz
	Day 2: Law of Gravity	OS 3.4-3.5, Canvas Reading	
Week 4	Day 1: Seasons and Calendars	OS 4.1-4.4	
	Day 2: Lunar Phases and Eclipses	OS 4.5-4.7, Canvas Reading	Project Idea due Friday
Week 5	Day 1: Intro to light as a wave	OS 5.1-5.3	Weeks 3-4 Wrap-up Quiz
	Day 2: Spectra	OS 5.4-5.6	
Week 6	Day 1: Telescopes	OS Ch. 6	
	Day 2: Science ethics	Canvas Reading	
Week 7	Day 1: Intro to the solar system	OS 7.1-7.3	Weeks 5-6 Wrap-up Quiz
	Day 2: Planetary Formation	OS 7.4, Canvas Reading	Project Draft due Friday
Week 8	Day 1: Earth	OS Ch. 8	
	Day 2: The Moon	OS 9.1-9.4	
Week 9	Day 1: Venus and Mars I	OS Ch. 10	Weeks 7-8 Wrap-up Quiz, Project Presentations Day 1/3
	Day 2: Venus and Mars II	Canvas Reading	
Week 10	Day 1: Giant Planets	OS Ch. 11	Project Presentations 2/3
	Day 2: Giant Planets Cont'd	Canvas Reading	
Week 11	Day 1: Exoplanets	OS Ch. 11	Weeks 9-10 Wrap-up Quiz, Project Presentations Day 3/3
	Day 2: Finding ET; Final Exam prep	OS Ch. 14	
Finals Week	Final Exam in ADM 119 Tuesday 3/26, 1:45-3:45pm		

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 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.

Office Hours:

T	10:30 AM	12:00 PM	In-Person	S55
TH	10:00 AM	11:00 AM	Zoom	
W	03:45 PM	05:15 PM	In-Person	ADM 119