

# ASTR 4

## Solar System Astronomy



### Professor

The teacher for this class is Dr. Ann Marie Cody.

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Office hours: Wednesdays, 11:30am-12:30pm online via zoom.

### Lectures

This class is normally taught Monday through Friday 8:30-9:20am in the De Anza Planetarium. However, for fall 2020, it is all online. You must log in to De Anza's Canvas system to access the course material. E-mail the professor for further details on how to do this.

### Textbook

The textbook for this class is available for free online at:

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

I recommend downloading the PDF version and using a PDF-reader program to read it, such as the free Adobe Reader.

### Goals this Quarter

You'll be learning a lot about what planetary systems are and how they work this quarter. You'll also learn a lot about how a large college course like this works. Here are some specific things I want to help you do; I hope that doing these things enables you to become a more scientifically aware citizen, and get you excited about science no matter what your eventual path in life!

1. Make your own judgments about how the exploration of space might be of benefit to society. Many people often question why we explore the universe and study the Earth from space. In this course, you'll learn more about how these endeavors might benefit us "on the ground".
2. Compare and contrast the planets (and other objects) in our solar system, and in other solar systems, so as to understand why they turned out the way they did. We call this *comparative planetology*, and it's one of the main goals of the astronomers who study solar systems – i.e. the planets and other objects that orbit around stars.
3. Evaluate things that you read, hear, or see in the news about astronomy. We are all exposed to many sources of information (internet, TV, etc...) and there's a method for evaluating the things these sources tell us about the world and the universe – it's called the *scientific method*.

# GRADING

## Step 1:

Participate fully in the class (e.g. answer questions in assigned discussions) to obtain 50 pts.

You take three (3) midterm exams and a final exam.

Test 1            200 pts

Test 2            200 pts

Test 3            200 pts

FINAL EXAM    300 pts

Optional        25 pts  
extra credit  
assignment

## Step 2:

I drop the lowest midterm exam.

-200 pts = **400 pts of midterms**

There's no way I'm going to drop **the final...** I add that in to the total midterm and participation points.

## Step 3:

I calculate the final grade.

Your final percentage =

The points you earned, after dropping lowest scores as described at left

DIVIDED BY...

750 total points

I then round your final percentage to the nearest whole percent, and use the following grading scale:

89-100 A

79-88 B

68-78 C

57-67 D

<57 F

## Notes:

1. A percentage like 88.7% rounds to 89, so it's an A.
2. If something causes you to miss a test or quiz, that will be the one you drop.
3. I'm afraid my schedule won't allow me to give you a final at a different time in order to fit your vacation. You'll need to plan around the final – you may want to tell family members about this before they buy non-refundable plane tickets.

## Astronomy 4 Class Rules and Guidelines

During the first few weeks of class, I will collect state-mandated class attendance data by assessing participation in our online system.

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### ADDING THE CLASS:

*If you add the class, make sure that your add code has worked, and that you have been properly added to the class. If not, it is your responsibility to check with the Admissions/Records office to find out how this can be corrected. After the end of Week 2, the College CANNOT process a late add, and you could find yourself not enrolled and not receiving a grade for the course, if you're not registered*

### DROPPING THE CLASS:

I would like to see everyone complete the course, earn a good grade, and become excited about science. However, the realities of life sometimes get in the way.

You should assess your situation realistically throughout the quarter.

If you decide to drop the class, you must do so by the final date to drop with a "w", or you risk receiving an "F" if you haven't earned enough points to pass the class.

Also – and this is very important – ASKING FOR AN INCOMPLETE GRADE WILL NOT WORK AS A WAY AROUND THE FINAL DROP DATE! I can only assign an Incomplete in a few, very specific situations. If it's after Week 8, and you realize you should have dropped, and someone in Counseling or Admissions and Records tells you to ask me for an Incomplete, it is VERY UNLIKELY that the situation will actually warrant one! "I" grades cannot be given for missing a large fraction of the work in the course.

### TESTS:

- You will be given a fixed amount of time to answer a series of questions online.
- No collaboration with classmates is allowed.
- You may, however, use your notes and book on exams.

NOTICE: Cheating on any exam or project is grounds for a failing grade in the class and a permanent note to a student's file. "Cheating" is defined (in this course) to be an effort by a student to obtain a grade by any means other than demonstration of that student's individual achievement in mastering the class material and/or fulfilling terms of a project.

Further grounds for expulsion from the class include any activity that interferes with others' ability to benefit from the class.

## ASTRONOMY 4 Lecture Schedule, Fall 2020 Section 64Z

Important: Dates of TESTS are fixed, but the lecture topics (shown in *italics*) are tentative.  
 Each test covers the material since the last test. Final Exam is comprehensive – it covers the whole quarter.

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT.
Wk 1	Sep	21 Course overview	22 Scientific method and distances in the Universe	23 Orienting ourselves on the night sky	24 Stars and their motions on the night sky	25 Apparent star motion, part II	26
Wk 2	Sep/ Oct	28 Annual motion of the stars and Sun	29 Ancient and cultural astronomy	30 Astrology and astronomy	1 Copernicus, Tycho, and Galileo: A Sun-centered model	2 Kepler's and Newton's laws	3 <b>Last day to drop w/out W</b>
Wk 3	Oct	5 Gravity: A Universal Force	6 Orbits	7 Tides	8 <b>TEST 1</b>	9 What REALLY causes the seasons?	10
Wk 4	Oct	12 Review Test 1	13 The phases of the moon	14 Eclipses of the Moon	15 Eclipses of the Sun & introduction to light	16 Light and the EM Spectrum	17
Wk 5	Oct	19 Spectroscopy and atoms	20 The Doppler effect and telescopes	21 Observatories on Earth and in space	22 <b>TEST 2</b>	23 Overview of the solar system we live in	24
Wk 6	Oct	26 Review Test 2	27 Origin of the solar system	28 Earth: The planet we know best	29 The greenhouse effect on Earth	30 Venus and Mercury	31
Wk 7	Nov	2 Earth's moon: history and exploration	3 Mars: the Red Planet	4 Missions to Mars	5 Jupiter and Saturn	6 Uranus and Neptune	7
Wk 8	Nov	9 Moons of the solar system	10 Titan, Triton, and Pluto	11 <b>HOLIDAY</b>	12 <b>TEST 3</b>	13 Planetary rings: Not just Saturn! <b>Last Drop Day</b>	14
Wk 9	Nov	16 Review Test 3	17 Exoplanets: detection	18 Exoplanets: discoveries	19 Exoplanets: habitability	20 The search for life in the universe	21
Wk 10	Nov	23 Our Sun: its structure and magnetic field	24 The Sun: How does it generate energy?	25 The future of our Solar System	26 <b>HOLIDAY</b>	27 <b>HOLIDAY</b>	28
Wk 11	Nov/ Dec	30 Comets	1 Asteroids- failed planets	2 Asteroids: planetary defense	3 Meteors and Meteorites	4 Final exam review	5
Wk 12	Dec FINALS	7	8	9 <b>FINAL EXAM DUE</b>	10	11	12

Reading assignments will be noted in the class's Canvas calendar system.



**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.