

SIO1 - The Planets

Anne Pommier

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Lectures: M,W,F 2-2.50pm, CENTR 212

Office hour:

W 4-5pm, SIO-IGPP Munk room 323

Teaching Assistants:

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Artist's view of the Solar system (www NASA)

Why Learn about Planetary Science?

First, because they are really fascinating, interesting, and inspiring. Second, because they are important in the history of science, and by learning about them, we can also learn many key principles in physics and other fields. Examples include the importance of careful observations in developing scientific theories and the revolution created by Newton's laws of mechanics and gravity.

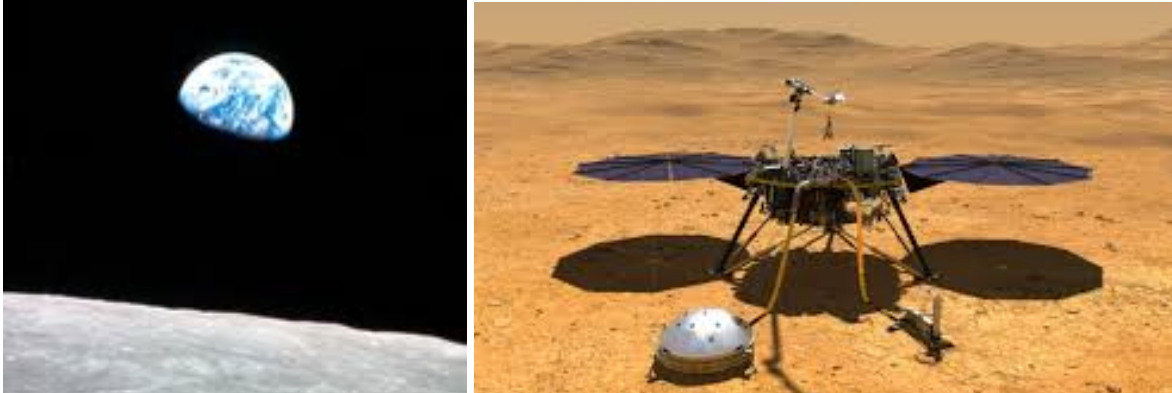
Note that this course is called "The Planets" but more accurately it should be called "The Solar System and beyond" because we will also discuss the Sun, moons, comets, asteroids, exoplanets. The field of planetary science is currently expanding to include many more planets. Our focus, however, will be on the well-studied properties of our own solar system.

Essential Questions

- What do we know about the Solar System and beyond, and how did we know about it?
- What are stars, planets, moons made of and how did they form?
- What are the physical laws governing the universe?

Course Description

Space exploration has revealed an astonishing diversity among the planets and moons in our solar system. The planets and their histories will be compared to gain insight and a new perspective on planet Earth. An evening star party (extra credit) on the UCSD campus will be planned to look at the Moon and whatever planets are visible through small telescopes (Mars, Saturn and its rings, Jupiter and the Galilean satellites, and some stars).



Left: Earthrise from the Moon; right: InSight Mars Lander (www NASA).

Required Course Materials

An ABCD color sheet for quizzes in class (available on Canvas). All other required materials will be posted online. You also should have a scientific calculator with log and yx keys. Bring to exams and labs.

There is no textbook for this class. Some class notes will be provided on the course website. There is also no prerequisite for this class; however, you should know the content of the **mathematics cheat sheet** that will be posted in Week 1 on the course website. This content will not be reviewed in class.

Grading

Final Report: mission proposal	20% (15% individual, 5% team)
Report (instrument)	10%
HW exercises (lab)	5%
Midterm Exam	30%
Final Exam	35%
Extra Credit (e.g., Star party)	+2%

Attendance

You are expected to attend all the lectures and lab sessions. Missing several lectures and/or labs may affect your grade. If you are absent from a class, pdfs of lecture slides are available at the course website in Canvas. Lectures are NOT recorded.

The classroom learning environment

As your professor, a key role I have is to promote learning. One important factor towards this goal is to maintain a classroom environment that allows people to actively participate and to learn without distractions or influences that act to destroy a positive learning environment. Our classroom environment has the following guidelines:

1. Phones are in silent mode and **put away**.
2. Tablets or laptops are to be used for note-taking purposes only (and only while sitting in the front 2 rows of the lecture hall)
3. Talking in class only during appropriate times

Students whom are unable to comply with these guidelines will be asked to close their tablet or laptop, surrender their phone for the duration of the lecture, or leave the classroom.

Exams

There will be one midterm and a final examination; the final exam will NOT be cumulative. All of the exam questions are based on the material from both the lectures, labs, and the course notes. All exams will be signed by the test-taker and your ID will be checked against the online photo of you provided by the registrar. All exams are closed book and closed notes. The final exam will be given on Week 11. Note the final exam will only be offered at this time — please do not take this class if you will be unable to make this time.

Make-Up Exams

Exam absences will be excused only when a student misses the exam for a legitimate reason such as: (1) illness, (2) family emergency, (3) athletic competition conflict. A doctor's or Dean's note is required for (1) and (2). Please get in touch with me as soon as possible if such a situation arises. Anyone with conflicts (3) must provide at least a 2-week notice with appropriate signed paperwork. In the case of missed exams, students will receive zero if they have no legitimate excuse. If they have a legitimate excuse, they may be asked to take a makeup exam or their point total for the class will be scaled to correct for the effect of the missing exam (this decision will be made by the instructor).

Working Together on the Mission Proposal

The final report is a team project, and each student will be responsible for completing their assigned portion of the report. In order to make the entire report as strong as possible, all members of the team are encouraged to discuss and provide input into all of the other team members' assignments, *however, each student's individual assignment should be written using his or her own words.* All members of the team are equally responsible for any infractions. Detailed instructions will be provided during the quarter. Digital versions (pdfs) of these reports will be turned in on the course website.

Lab Sessions

The labs will provide an opportunity for students to further some topics (through worked examples of problems) and ask the TAs questions about the course material and final project.

Extra Credit Star Party

An evening star party is planned to look at the Moon and whatever planets are visible through small telescopes. Times and locations are to be determined but will be somewhere on the UCSD campus. You will receive extra credit if you attend these events (bring your ID).



UCSD Policy on Integrity of Scholarship

UCSD has an established policy on academic honesty that we will follow in this class. Please see: <http://academicintegrity.ucsd.edu/>
In plain English: don't cheat and don't plagiarize.

Summary

Course Grade

Midterm + final exams:
65%
Mission proposal: 20%
Other: 15%

To Succeed in this Course

- Meet assignment deadlines and requirements
- Ask questions, whether they are content or skill related, further your thinking, be curious
- Take responsibility for your learning

Main Learning Goals of this Course

- Students will be familiar with major discoveries in planetary science
- Students will know some key principles in physics that explain the motion of planets
- Students will develop skills in expressing themselves orally and in writing



Launch of Juno spacecraft to Jupiter (www, NASA)