

Exploring Our Solar System PTYS/ASTR 206 (a.k.a. Planets 206)

Course Description:

Our Solar System is filled with an incredible diversity of objects. These include the sun and planets, of course, but also many hundreds of moons -- some with exotic oceans, erupting volcanoes, or dynamic atmospheres. Billions of asteroids and comets inhabit the space between and beyond the planets. Each body is unique, and has followed its own evolutionary history. This class will explore our current understanding of the Solar System and emphasize similarities that unite the different bodies as well as the differences between them. We will develop an understanding of physical processes that occur on these bodies, including tectonics, impact cratering, volcanism, and processes operating in their interiors, oceans, and atmospheres. We will also discuss planets around nearby stars and the potential for life beyond Earth. Throughout the class, we will highlight the leading role that the University of Arizona has played in exploring our Solar System.

Instructor:

Steve Kortenka (kortenka@arizona.edu)
Professor, Dept. of Planetary Sciences, Kuiper Space Sciences building
See Brightspace/D2L page for other members of our teaching team and office hours

Class Logistics:

This is an in-person class meeting in UA's Flandrau Science Center Planetarium
Mondays and Wednesdays 12:30-1:45pm.

General Content of the Course:

Tools and Techniques of Modern Planetary Scientists - Light, Radar, Robots, etc.
Hands-On Telescope Observing and Simple Smartphone Astrophotography
Perspectives of Early and Modern Astronomers on Our Solar System
Communication in Writing and Speaking for General Audiences
Exploring the Planets and Small Bodies of Our Solar System



Course Communication: (adapted from a syllabus by Dr. Katy Prudic)

If email communication with the instructor or a TA is needed, please use only your official UA email address (e.g., kortenka@arizona.edu) and put "Planets 206" in the subject line. This helps us sort important messages and distinguishes which class you are in (most of us are involved as teachers and students in several different classes). Start your email with an appropriate salutation, such as *Hi Dr K* or *Hello Olivia*. It is professional and helps us, help you. I'm sure we all try to keep up with our email. But sometimes we get so many messages (100+ per day) that things get missed. Sorry about that! You may have to send a follow-up email if you have not heard back from us after about 48 hours (or by Monday afternoon if you send on a Friday). Assume this happened and just resend your email with something polite, like *Hi Steve, I'm just following up on my recent email. Looking forward to hearing*

back from you! Hannah. We always assume you are working as best you can, we ask you to do the same for us. To improve communication, include Dr K and the TAs on your message rather than just one person. Also consider dropping in to one of the many office hours we're offering for a conversation in real-time.

Prerequisites and General Expectations:

While there are no formal prerequisites for this class it is expected that all UA students have a healthy foundation of mathematics, including arithmetic and geometry.

Generally, the university expectations across disciplines are for approximately 2-3 hours of effort out of class for each hour of class time.

Course Components:

This course will involve several components; 1) engagement with in-class prompts using the Point Solutions app and hand-written activities, 2) a collection of written "1-Page Papers," 3) a total of three mid-term exams, and 4) a Signature Assignment selected from two available options (to be described in class). There will be no final exam in this course. The Signature Assignment will fulfill the requirement of a summative assessment in this course.

➔ Division of Grade:

Each person designs their own customized weighting for the different components of the course from the allowed ranges listed at right. Total weighting must add up to 100%. Each component is described in detail during class and

Course Component	Allowed Range
Mandatory Grade Selection & Reflection	5%
In-Class Participation/Activities	0-15%
Collection of 1-Page Written Papers	30-40%
Three Mid-Term Exams	0-30%
Option 1 – Recorded Video Presentation	0-25%
Option 2 – Telescope Observing Project	0-40%

feedback is provided on early work prior to the selection deadline, which will be about the end of the 4th week of class. After the selection deadline passes all grading choices are final and cannot be changed. Three examples of the many possible combinations are shown below. Please use 5% increments.

Example 1		Example 2		Example 3	
Mandatory	5	Mandatory	5	Mandatory	5
In-Class	15	In-Class	15	In-Class	0
1-Page Papers	40	1-Page Papers	30	1-Page Papers	40
Mid-Term Exams	0	Mid-Term Exams	30	Mid-Term Exams	0
Video Presentation	0	Video Presentation	20	Video Presentation	25
Telescope Project	40	Telescope Project	0	Telescope Project	30
Total	100%	Total	100%	Total	100%

Final Letter Grade:

Course letter grades will follow the traditional 90-80-70-60 format for A-B-C-D.

1-Page Written Papers:

There will be 5-6 total 1-Page Papers. The lowest grade on these papers will be dropped. At least the first 3 of these 1-Page Papers can be revised and resubmitted for full points back after receiving a grade and feedback. However, revisions for a better grade require that the original submission meets the “Honest Effort” criteria below. See the Brightspace/D2L Content area under 1-Page Papers for guidelines and a free sample paper. Failure to submit Paper #1 will trigger an administrative drop from the class.



Course Objectives:

Students who engage with this course will develop a broad understanding of many fundamental concepts in planetary science and gain an appreciation for the discoveries and reasoning that informs this understanding. Specifically, students will (1) use writing to demonstrate the methodologies and knowledge that characterize the perspectives of planetary scientists – such as astronomers and geologists – in the context of exploring our solar system, (2) obtain their own data – such as images using telescopes, measurements from scale models, and observations of local natural phenomena, (3) use writing to apply the perspective of planetary scientists to critically analyze and interpret their images and quantitative data, (4) communicate their work – through written essays and recorded video presentations – with an audience of educated non-expert peers, and (5) discuss the past and current contributions of planetary scientists with diverse backgrounds and the complexities faced by students and scientists with disabilities – particularly those who are blind or visually impaired.

Student Learning Outcomes:

Upon successful completion of this course students will be able to (1) communicate through writing a broad historical and modern understanding of our solar system – from planets and moons to rings and small bodies such as asteroids and comets, (2) write about the approaches and methodologies of planetary scientists and consider benefits of this perspective for larger society, (3) demonstrate competency in working with numerical information by critically analyzing quantitative information, generating ideas that are supported by quantitative evidence, assessing the relevance of data and its associated implications in a variety of contexts, and communicating those ideas and/or associated interpretations using various formats (e.g., written papers, recorded video presentations, use of graphs and/or tables), (4) effectively communicate an understanding of these concepts to their SOS peers by writing in a variety of contexts and through consistent use of specific conventions of organization, design, style, mechanics and citation format while reflecting on their writing development and, (5) demonstrate practical skills with a variety of software, including Word, Excel, Keynote, PowerPoint, and image/video editing apps.

Academic Integrity – including the use of AI tools:

The course web page is maintained through Brightspace/D2L. All work for this class MUST be submitted electronically to designated Brightspace/D2L assignment folders. The Brightspace/D2L tool will automatically check our work against on-line resources and for AI generated work. Because of these checks, those of us who do our own work and properly cite our sources of information and assistance will not have to compete with others who commit plagiarism. All written work for this class must be “in our own words” - this includes responses to in-class prompts, the 1-Page Papers, and the Signature Assignment. Any work that is copied from an AI tool like chatGPT will not receive credit and will be reported to the Dean of Students. We will use AI tools for assistance and feedback on our writing, but we need to treat it as we do any other source of material. We need to be very careful by acknowledging this, properly citing the source, and maintaining the integrity of our writing being “in our own words.”

Fairness in Deadlines:

All work for this class will be submitted through our class Brightspace/D2L page, into the appropriate folders. To ensure fairness to everyone (past, present, and future classes), late work will not be accepted after the due date/time and designated grace period except under extraordinary circumstances or with at least 24-hour prior approval. If you miss a deadline by just a few minutes, email your paper to the instructor and TAs immediately and explain the situation. If you anticipate a problem meeting a future deadline (job interview, travel, etc) then plan to submit your work early.

“Honest Effort” Eligibility for Paper Revisions:

First submissions of at least the first two 1-Page Papers are given a tentative grade along with comments/feedback. Revisions are then expected to address the feedback. In order to avoid the revision process being unfairly exploited, revisions can only be submitted if the following criteria are met: 1) A first submission is made by the original deadline, 2) the first submission is a reasonably complete response to each element of the prompt, including an SOS introduction, the required figures, the supporting-pages, and 3) your revisions are discussed with a TA or the instructor during office hours. Only after all three conditions are met will the Brightspace/D2L submission folder open for your revisions.

Class Engagement and Participation:

Regular engagement and effective participation are essential to do well in this course. In an effort to help reduce the rate of failing and W grades, anyone who hasn't sufficiently engaged with the course by the last day of the drop/add period will be administratively dropped.

Regardless of your level of engagement, you are responsible for remaining aware of class activities and due dates.

If you must miss significant time during the course, you should contact the Dean of Students Office DOS-deanofstudents@email.arizona.edu to share documentation so that the Dean can help arrange accommodations with the instructor.

Errors in Grading:

An effort will be made to return graded material in a timely manner. Make sure to review all of your graded material as soon as possible. Occasionally errors in grading may occur. If you spot such an error, you must call it to the attention of the instructor **within one week**.

Honors Credit:

As this is a GenEd course it is available for Honors credit. Honors contract information is available at frankehonors.arizona.edu/academics/honors-contracts. If you have ideas for an honors contract, please see the instructor during office hours.

Makeup Policy for Students Who Enroll Late:

Students who enroll before the drop/add period ends will not need special accommodations because the first deadlines come several days after this date. After the drop/add period passes, instructor permission is needed to enroll and at that time arrangements can be discussed if needed.

Required “Out-Of-Class” Activities:

In addition to the written paper assignments, the Signature Assignment project will require many hours of work outside of the “normal” class time over the course of the semester. Generally, the university expectations across disciplines are for approximately 2-3 hours of effort out of class for each hour of class time.

Safety on Campus

For a list of emergency procedures for many types of incidents, please visit the website of the Critical Incident Response Team (CIRT): cirt.arizona.edu

Additional Syllabus Policies Applying to All University of Arizona Classes:

For an up-to-date list, including additional policies on Academic Integrity, Accessibility and Accommodations, see: catalog.arizona.edu/syllabus-policies