



# General Education

**PTYS/ASTR 206: Exploring Our Solar System**

**Spring 2025**

**Kuiper 308, TuTh 2:00 – 3:15 PM**

<https://d2l.arizona.edu/d2l/home/1571833>

## **Instructor:**

Dr. Joe Schools ([jschools@arizona.edu](mailto:jschools@arizona.edu))

Kuiper Space Sciences, Room 424

Office Hours: TBD and by appointment

## **Graduate Teaching Assistants:**

Jingyu Wang ([wangjingyu@arizona.edu](mailto:wangjingyu@arizona.edu))

Office Hours: TBD

## **Part 1: Course Curriculum**

### **1.1 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.

### **1.2 Expected Students Learning Outcomes**

Upon successful completion of this course students will be able to:

1. Access and use information and data from a variety of sources, including their own activities.
2. Critically evaluate this information and data for reliability in supporting fundamental concepts.
3. Effectively communicate an understanding of these concepts to their peers by synthesizing the information and data they have gathered.
4. Demonstrate practical skills with a variety of software, including Word, Excel, Keynote, PowerPoint, and image/video editing apps.

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 leads to this understanding. They will learn to collect their own data as well as gather relevant supporting information from a variety of outside sources. Throughout the semester students will be demonstrating their grasp of course material by composing written assignments at a level their peers outside of the class will understand.

### 1.3 Course Assessment Plan

#### Learning Opportunities Throughout the course

This course will involve several components: 1) In-class activities, writings, and review questions based on the content, 2) a collection of written assignments (5 essays and one reflection), 3) The Signature Assignment. The schedule of written essay due dates will be announced in class and posted on the class D2L page. There will be no exams in this course.

#### In-class activities

Using the Top Hat platform (<https://app.tophat.com>), students will participate in the course by answering questions during the lecture. These questions include polls and rhetorical questions recorded as attendance/participation and review questions graded as correct or incorrect. At the end of the semester 5% will be added to this final grade to accommodate for unexpected absences or technical difficulties.



#### Essays

The five essays in this course consist of a one-page, single space response to the prompt. Each essay will include a second page using a Large Language Model AI chatbot (ChatGPT, Google Gemini, etc.) to output an answer to the essay prompt and critique its response. The format of the essays will be reviewed in class before the first essay.

One written reflection will consist of walking along the Arizona Scale Model Solar System (<https://www.lpl.arizona.edu/solarsystem>). You will document your walk with pictures, write about the scale of the vast distances of the solar system, and calculate some distance values for other objects.



#### Signature Assignment and ePortfolio

The Signature Assignment for this course is to propose and plan a robotic spacecraft mission to a planetary body of your choice. The final product will consist of a one-page initial proposal due in early February, a four page final paper with an outline due in late March, and a final 7-10 minute video due near the end of the semester.

#### Final Examination

There is no final exam for this course.

#### Honors Credit

As this is a GenEd course it is available for Honors credit. Honors contract information is available at [frankehonors.arizona.edu](http://frankehonors.arizona.edu). See the instructor to discuss your ideas for an honor contract.

## 1.4 Scheduled Topics/Activities

Scheduled lesson topics and due dates are likely to shift or change:

Due dates will be kept current on D2L

Week	Class Dates	Topic	Deliverable	Due Date *
1	1/16	Intro/Syllabus Overview	Top Hat registration	1/17
2	1/21, 1/23	Ancient Astronomy		
3	1/28, 1/30	Physics and Chemistry Fundamentals	Essay	1/31
4	2/4, 2/6	Stars and Solar System Origin	Initial Proposal	2/7
5	2/11, 2/13	Earth	Essay	2/14
6	2/18, 2/20	Moon		
7	2/25, 2/27	Mercury	Essay	2/28
8	3/4, 3/6	Venus	Solar System Scale Reflection	3/7
9	3/11, 3/13	<b>Spring Break</b>	Grade Breakdown Choice	3/14
10	3/18, 3/20	Mars	Essay	3/21
11	3/25, 3/27	More Mars	Proposal Outline	3/28
12	4/1, 4/3	Asteroids	Essay	4/4
13	4/8, 4/10	Jupiter and its Moons		
14	4/15, 4/17	Saturn and its Moons		
15	4/22, 4/24	Uranus and Neptune	Final Paper	4/25
16	4/29, 5/1	Pluto, the Kuiper Belt, and the Oort Cloud	Final Video	5/2
17	5/6	Exoplanets and Review		

\*Due dates are all Fridays by 11:59 Tucson time to D2L.

## Part 2: Course Information

General course information includes people, online learning sites, communication strategies, materials, and IT needs for successful engagement with the course.

### 2.1 Course Site

Course information, announcements, assignments, and grades will be posted on the class D2L page, [here](#).



### 2.2 Course Communications

Course announcements and other communications will be posted on the class D2L page. Important and/or urgent communications will be sent by email. If you need to communicate with the instructor for any reason, see them before class, after class, or by sending an email to [jschools@arizona.edu](mailto:jschools@arizona.edu).

### 2.3 Required Resources and Equipment

- Any device (smartphone, tablet, computer) capable of internet access, including during class time.

## 2.4 Student Success Resources

Please make your students aware of resources and support services. At a minimum, you may include:

- [UA Academic policies and procedures](#)
- [Student Assistance and Advocacy information](#)
- [Counseling and Psych Services \(CAPS\)](#)
- [Other student support resources](#)

## 2.4 Course Textbook

This course will include readings from the following textbook: **Introduction to Planetary Science: The Geological Perspective**. This text is available for free [here](#). You may need to be on UA Wi-Fi to access initially, but you can download it.



## Part 3: Course Policies

### 3.1 Progress and Completion Policies

#### Late Enrollment

Students who register by the end of the first week of classes will be given an opportunity to make up missed work within a reasonable time to be mutually agree upon by the instructor and student.

#### Absence and Class Participation

The UA policy concerning Class Attendance, Participation, and Administrative Drops is available at: <https://catalog.arizona.edu/policy/class-attendance-and-participation>

The UA policy regarding absences for any sincerely held religious customs will be accommodated where reasonable:

<https://policy.arizona.edu/human-resources/religious-accommodation-policy>

Absences preapproved by the UA Dean of Students (or dean's designee) will be honored:

<https://policy.arizona.edu/employment-human-resources/attendance>

Do not attend class while ill. Temporary remote attendance can be arranged with appropriate advanced notification.

#### Grading

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

Course Component	Allowed Range
In-Class Activities	0-20%
Collection of 1-Page written Essays	30-60%
Signature Assignment	30-60%

detail during class and feedback is provided on early work for each component prior to the selection deadline, which is at the end of the first 4 weeks 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

Activities	20%
Essays	40%
Signature	40%

Example 2

Activities	20%
Essays	30%
Signature	50%

Example 3

Activities	0%
Essays	60%
Signature	40%

The nominal scale shown here will be used to determine the final letter grades in the course from the overall cumulative percentage. A lower “curve” may be used.

A:	90% and higher
B:	80-89%
C:	70-79%
D:	55-69%
E:	below 55%

### Late policy

For regular assignments, with no advance notice, there is a late policy of -10% per day. If you have difficulties this semester which affect your ability to meet due dates, please communicate with the teaching staff as soon as possible.

### Regrades

All your work will be graded by Dr. Schools or the Graduate Teaching Assistants. Although we will make every effort to evaluate your work thoroughly and fairly, we may err. If you think there is an error in grading your homework, please contact Dr. Schools; I will look at your work again and return it to you with a response, usually within a week. **You must report any grading errors within a week of the return of your assignment to receive a regrade.**

### Extra credit

There will be opportunities for extra credit during the semester. Take advantage of them when they appear because they may not be available at the end of the semester. The total amount of extra credit that can count towards the final overall letter grade is capped at 5% (essentially half a letter grade). Extra credit is possible on the Signature Assignment for exceptional work beyond the nominal requirements of the project. If you have any interesting ideas for extra credit work please tell the instructor as early in the semester as possible.

### Academic integrity

Both students and faculty are bound by the University’s Code of Academic Integrity, which covers many forms of academic dishonesty. Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. This means that work submitted in your name must be the result of your own scholarly efforts. In this course, it is typical that 2-3 students be caught plagiarizing on homework or attempting to cheat on the term project. Every such incident is reported to the Dean of Students. Don’t be one of these students! Details on the code of academic integrity are available at:

<https://deanofstudents.arizona.edu/policies/code-academic-integrity>

The University Libraries have some excellent tips for avoiding plagiarism, see:

<https://lib.arizona.edu/research/citing/plagiarism>

## Use of AI tools

In this course there will be some assignments where generative artificial intelligence/large-language-models (e.g. ChatGPT, Dall-e, Gemini, Perplexity, etc.) are welcome or even required. Every assignment will have a description of how AI tools are to be used or avoided. AI contributions to assignments will be clearly labeled when submitted. Inappropriate use of AI tools will be considered a violation of the Code of Academic Integrity, specifically the prohibition against submitting work that is not your own.

## 3.2 Classroom Climate and Community Engagement

### UA Policies and Student Resources

All UA courses adhere to the general UA Policies as stated on the institutional websites:

<https://academicaffairs.arizona.edu/syllabus-policies>. Please make yourself familiar with the Student Code of Academic Integrity and the protocol ensuring non-discriminatory, anti-harassment, non-threatening learning experiences. This site also includes a list of student resources. The entirety of University Policies can be found here: <https://catalog.arizona.edu/policies>.

### Accessibility and Accommodations

It is the University's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let the instructor know immediately so that options can be discussed. You are also welcome to contact Disability Resources (520-621-3268) to establish reasonable accommodations. Please be aware that the accessible positions in this room should remain available for students who find that standard classroom seating is not usable.

### Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <https://deanofstudents.arizona.edu/student-rights-responsibilities/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <https://lib.arizona.edu/research/citing/plagiarism>.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

### Course Climate and Inclusion Statement

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, gaming, online shopping, etc.).

This course also supports elective gender pronoun use and self-identification; rosters indicating such

choices will be updated throughout the semester, upon student request. As the course includes some group work and discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect.

### **Threatening Behavior**

UA policy prohibits threats of physical harm to any member of the University community. Details on the policy are available at:

<https://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>

### **Nondiscrimination and Anti-harassment**

The University is committed to creating and maintaining an environment free of discrimination. Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others. Details on the official UA policy are available at:

<https://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

### **Safety on Campus and in the Classroom**

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): <https://cirt.arizona.edu/case-emergency/overview>

Also watch the video available at

[https://arizona.sabacloud.com/Saba/Web\\_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560](https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560)

### **Confidentiality of Student Records**

All student records, not just grades but also any identifiable material submitted for credit are handled according to FERPA guidelines, see:

<https://www.registrar.arizona.edu/privacy-ferpa/ferpa-compliance>

### **Additional Resources for Students**

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

### **Campus Health**

<http://www.health.arizona.edu/>

Campus Health provides quality medical and mental health care services through virtual and in-person care.

Phone: 520-621-9202

### **Counseling and Psych Services (CAPS)**

<https://health.arizona.edu/counseling-psych-services>

CAPS provides mental health care, including short-term counseling services.

Phone: 520-621-3334

**The Dean of Students Office's Student Assistance Program**

<https://deanofstudents.arizona.edu/support/student-assistance>

Student Assistance helps students manage crises, life traumas, and other barriers that impede success. The staff addresses the needs of students who experience issues related to social adjustment, academic challenges, psychological health, physical health, victimization, and relationship issues, through a variety of interventions, referrals, and follow up services.

Email: [DOS-deanofstudents@arizona.edu](mailto:DOS-deanofstudents@arizona.edu)

Phone: 520-621-7057

**Survivor Advocacy Program**

<https://survivoradvocacy.arizona.edu/>

The Survivor Advocacy Program provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support. Email: [survivoradvocacy@arizona.edu](mailto:survivoradvocacy@arizona.edu)

Phone: 520-621-5767

**Campus Pantry**

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. In addition, the University of Arizona Campus Pantry is open for students to receive supplemental groceries at no cost.

Please see their website at: [campuspantry.arizona.edu](http://campuspantry.arizona.edu) for open times.

Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources that I may possess.

**Subject to Change Statement**

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.