PTYS 170B2 Universe and Humanity: Exploring Our Place in Space Spring 2026

**Instructor**: Professor Travis Barman
Email: barman@lpl.arizona.edu
Office: Kuiper Space Sciences, Room 436
Office Hours: after class, or by appointment

**Grad. Teaching Asst.** Lucas Smith(lucasrsmith@arizona.edu)
Office: Kuiper Space Sciences, Room TBD
Office Hours: TBD (or by appointment)

**Schedule**: Tuesday and Thursday, 12:30 – 1:45pm,
Kuiper Space Sciences room 308 (subject to change)

**Course Objectives**
The Earth is one planet in our Solar System and our Solar System is one of many thousands of known planetary systems. During this course we will explore various topics to help place the Earth (and Humanity) in a broad cosmic context. Both planetary and stellar properties will be covered. The course will introduce you to the concepts and techniques used in astronomy and planetary sciences to understand distant worlds.

**Learning Outcomes**
Upon completion of this course you will be able to identify the important properties of the Sun and its major planets, and explain how these properties compare to other large bodies in the galaxy. Using standard physical and chemical concepts, you will be able to explain current formation models for stars and planets. You will also be able to describe the diversity of planets populating the galaxy and how the properties of these distant worlds compare to the terrestrial and giant planets orbiting our Sun. You will also gain a quantitative understanding of the scale of the Solar System, the Solar Neighborhood, and planetary motions using equations, graphs and observations (e.g., of the Moon, Sun, and/or bright planets or stars).

This syllabus provides important information about the structure and content of the course. Syllabus updates will be posted on D2L as needed.

**Textbook**: *The Cosmic Perspective* (Bennett, Donahue, Schneider, Voit; 7th ed. or higher). The textbook is not required but strongly recommended for this course. Reading assignments will be from this book and it will be invaluable for learning the material, completing certain assignments and preparing for exams.

**Grades**:

| | |
|---|---|
| Exams 1,2,3: | 100 points each (300 max) |
| Homework: | 15 points each (150 max) |
| Signature Project: | 150 points (150 max) |
| Pop Quizzes | 15 points each (150 max) |

total points available = 750

| Points Earned | Letter Grade |
|---|---|
| >= 540 | A |
| 480 – 539.9 | B |
| 390 – 479.9 | C |
| 300 – 389.9 | D |
| < 50 | E |

**Exams**: There will be three in-class "mid-term" exams. There will be NO make up exams. *If more time is needed to complete exams, you MUST notify the professor and contact DRC at least two weeks in advance to schedule a time to take the exam at the DRC testing facility.* **There will not be a final exam for this class.**

**Homework:** Will be assigned approximately each week and usually due one week after assigned. Most homework assignments will be administered online at the D2L course page.

**Signature Assignment:** There will be two options for this project. The details will be posted on D2L.

**Pop Quizzes:** In-class quizzes will be administered stochastically throughout the semester. These will take only a short time to complete and serve the dual purpose of monitoring attendance and encouraging you to keep up with the material. There will be no opportunities to make up pop quizzes.

**Bonus Points**: There may be opportunities to earn bonus points throughout the semester. You may earn up to a maximum of 20 bonus points.

**Requests for incomplete (I) or withdrawal (W)** must be made in accordance with University policies, available see: https://academicaffairs.arizona.edu/syllabus-policies

**Schedule:** The following table lists the approximate order of topics:

| Week | Topic | Assigned Chapter Reading |
|---|---|---|
| 1-2 | A Modern View of the Universe, | 1 |
| | Discovering the Universe for Yourself | 2 |
| 3 | The Science of Astronomy | 3 |
| 4 | Making Sense of the Universe<br>Understanding Motion, Energy, and Gravity | 4 |
| 5 | Light and Matter | 5 |
| 6-7 | Our Star / Star Birth | 14/16 |
| 8 | Star Stuff / Stellar Graveyard | 17/18 |
| 9 | Spring Break | |
| 10 | Our Planetary System | 7 |
| 11-12 | Solar System/Planet Formation | 8 |
| 13 | Planetary Atmospheres | 10 |
| 14 | Atmospheres, Jovian Planets | 11 |
| 15-17 | Other Planetary Systems (Exoplanets) | 13 |

**Exam 1: aproximate date Feb. 17th**
**Exam 2: aproximate date Mar. 24th**
**Exam 3: aproximate date Apr 21th**

**Final Exam: NONE**

---

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is *strongly recommended*.

**Honors contract**: PTYS170B is a Tier One science course available for an honors contract. . For those requiring a contract, please contact the professor and complete this form: https://frankehonors.arizona.edu/academics/honors-contracts

**Generative AI Policy**:
In this course use of generative artificial intelligence (AI)/large language model tools such as ChatGPT, Dall-e, Google Bard, Microsoft Bing, etc. is not permitted except when explicitly called for by the instructor. For example, incorporating any part of an AI-written response in an assignment is strictly prohibited and will be considered a violation of the Code of Academic Integrity. Similarly, submitting your own work for this class to a large language model AI tool for iteration or improvement is prohibited. Please be aware that your written work may be shared with one or more AI-detection tools designed to predict if the text was created by a generative AI/large-language model like ChatGPT. TurnItIn Services Privacy Policy is available online.

**Classroom Behavior:** Please turn off/disable your mobile phone during class. Students are encouraged to adhere to the UA Policy on Disruptive Behavior in an Instructional Setting. See: https://academicaffairs.arizona.edu/syllabus-policies

**Posting videos, photos or recordings of lectures, exams, scorecards, etc. online or distributed by any media format is strictly prohibited (this includes social media forums). You may only make recordings for personal learning use and only after obtaining approval from the professor.**

**Accessibility and Accommodations:** Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

*If more time is needed to complete exams, you should notify the professor and contact DRC at least **two weeks in advance** to schedule a time to take the exam there.*

**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

You are strongly encouraged to review the general university policies for this course found here: https://academicaffairs.arizona.edu/syllabus-policies