PTYS/ASTR 170B2 UNIVERSE AND HUMANITY: EXPLORING OUR PLACE IN SPACE

T1-NATS (Tier 1 Natural Sciences)

Kuiper Space Sciences Room 308

Tuesday and Thursday from 9:30 to 10:45 a.m.

Description of Course

This course places the Earth and humanity in a broad cosmic context and seeks to answer fundamental questions about our surroundings. Where are we, and where do we come from? What is matter made of, and what processes created it? What are different types of stars like and where does our Sun fit in? What is the role of stars in shaping the cosmos and the planets orbiting them? How did the Sun, the Earth, and the other planets form in the solar system? What are the planets in the solar system like, and are there other planetary systems like ours? In addition to exploring these questions, this course will help students to understand how we have arrived at our current view of the universe, with a focus on the scientific method and the history of astronomy.

Instructor and Contact Information

Instructor: *Pierre Haenecour*, Kuiper Space Sciences (KSS) 530, haenecour@arizona.edu
Office Hours: In-person (Kuiper 530) or on Zoom by appointment. The preferred time is 1-3 p.m. on Tuesdays.
https://www.lpl.arizona.edu/faculty/pierre-haenecour

Graduate Teaching Assistants:
Gabriel Gowman, gowmang@arizona.edu
Office Hours: Thursdays between 1 and 3 PM in Kuiper Fishbowl, on the northeast part of the second floor by the Mars yard, or by appointment.

Course Website and Communications

The course materials, grades, and all communications will be posted on D2L. Please include 'PTYS/ASTRO170B2' in the subject of all emails to the instructor and TA.

Course Format and Teaching Methods

Lecture format supplemented with some in-class discussions and small-group activities in class and out of class.

Course Objectives

This course aims to introduce you to planetary science and astronomy concepts, what we know about the observable universe, and to place humankind into that context. You will be introduced to the concepts and techniques used in astronomy and planetary science to understand our solar system and beyond.

Expected Learning Outcomes

Upon completing this course, you will be able to explain our current models for the formation of the universe, stars, and our solar system. You will be able to describe the properties of the major bodies in our solar system and how they compare to one another. You will gain a quantitative understanding of the scale of our solar system, our galaxy, and the observable universe. You will gain an understanding of the properties of light, matter, time, and gravity.

Course Communications

Online communication will be conducted through official UA e-mail address and D2L. Students are encouraged to email the instructor about any questions and/or concerns. Please include 'PTYS170B2' in the subject of all emails to the instructor and TAs.

Recommended Textbooks or Readings

Astronomy (Fraknoi, Morrison, and Wolff; OpenStax). The textbook is an open-access textbook available on D2L, and it is strongly recommended that students use it as a resource.

Required Resources and Equipment

Access to a computer and the Top Hat platform (www.tophat.com) will be needed for the class. Top Hat will be used during the lectures for live polling/quiz questions as part of class participation. You will be able to submit answers to in-class questions using Apple or Android devices, computers, or through text messages. For instructions on how to download the Top Hat app, refer to Top Hat's [Getting Started Guide (opens in new tab)](#). Please note, you cannot create an account through the mobile application.

If you already have a Top Hat account, navigate to your course via the learning management system (e.g. D2L), select UA Tools in the course Navbar, and then select **Top Hat**. If your course does not have a UA Tools menu in the Navbar, contact your instructor for where to find the Top Hat link. If you are new to Top Hat, you will be prompted to create an account once you select the Top Hat link.

Self-guided help can be found at [UArizona's Student Top Hat Help Pages](#). Should you require assistance with Top Hat at any time, please contact Top Hat's Support Team directly by emailing support@tophat.com, selecting the in-app support button, or calling **1-888-663-5491**. Their technical support team may require specific user information when troubleshooting issues. For issues with your device, browser, or NetID account, please visit [https://247.arizona.edu (opens in new tab)](https://247.arizona.edu).

Required Extracurricular Activities

The course includes a term project (signature assignment) that is undertaken outside of class. Students must choose one project from the available options early in the semester. More information about choosing the term project is available on the course D2L page.

Assignments and Examinations: Schedule/Due Dates

There will be six homework assignments, one signature assignment, three tests, and a final exam.

Due Dates	
Syllabus Quiz: Aug 30, 2024	**Quiz#1:** Sept 19, 2024
HW #1: Sept 10, 2024	**Quiz#2:** Oct 17, 2024
HW #2: Sept 26, 2024	**Quiz#3:** Nov 26, 2024 (on D2L)
HW #3: Oct 24, 2024	**Signature Assignment:** Dec 03, 2024
HW #4: Nov 21, 2024	**Final Exam:** Dec 17, 2024, from 8 – 10 AM
HW #5: Dec 10, 2024	

Policy on revision or resubmission of assignments and Writing Requirement

PTYS 170B2 is a Tier 1 General Education course that requires significant writing so that students engage with the concepts, facts, and theories they interact with in different disciplines. Therefore, both informal and formal writing assignments will be integrated into your homework sets, tests, and a signature assignment. The writing assignments will emphasize critical inquiry, including the gathering of information and interpretation of facts and ideas. You will be provided feedback on the assignments, which may vary in number and length. One of these assignments will involve submission of a first draft, feedback on the first draft, and submission of a revised draft for grading. Otherwise, all other assignments will be submitted as a single draft on which you will be given feedback but will not revise for a grade.

Final Examination or Project

Our Final Exam is scheduled for Tuesday, December 17, from 8 – 10 AM. For more information, refer to https://registrar.arizona.edu/faculty-staff-resources/room-class-scheduling/schedule-classes/final-exams.

Final Exam Regulations can be found at https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information, and Final Exam Schedule is at http://www.registrar.arizona.edu/schedules/finals.htm. The schedule is provided for reference only. There is no final exam on this course.

Signature Assignment and ePortfolio

In the new General Education curriculum you will include signature assignments in your final ePortfolio in Digication, started in your UNIV 101 course. Please keep track of assignments and materials from this course that are meaningful, relevant, and useful to you. We highly recommend you upload them into your Digication ePortfolio to make UNIV 301 easier. For students in the Tiers General Education curriculum, you **do not** need to compile your assignments in Digication.

Grading Scale and Policies

Students will be assessed based on:

- Homeworks: 30% (6% each)
- Mid-term quizzes: 30% (10% each)
- Signature Assignment: 20%
- Final Exam (10%)
- Syllabus Quiz (5%)
- Class participation and group assignments (5%)
- There will be opportunities to earn bonus points throughout the semester. The points will be added to your final grade. Opportunities for extra credit will be announced during the semester.

Grading Scale for the Course:

A — 90-100%	D — 50-64.9%
B — 80-89.9 %	E — < 50%
C — 65-79.9%	

Late homework will only be accepted with a valid reason and will in most cases be subject to a 20% penalty. You cannot submit any late homework through D2L.

The general university policy regarding grades and grading systems is available at http://catalog.arizona.edu/policy/grades-and-grading-system

Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete and http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal respectively.

Dispute of Grade Policy

The acceptable time period for disputing a grade on a paper/assignment, presentation, or quiz/exam is a maximum of a week after the grade has been posted on D2L. The student must email the instructor to request a Zoom office hour call to discuss the disputed grade.

Honors Credit

Students wishing to contract this course for Honors Credit should email me to set up an appointment to discuss the terms of the contract. Honors contract information is available at https://www.honors.arizona.edu/honors-contracts.

Scheduled Topics/Activities

The topics in logical units in a weekly schedule, including assignment due dates and exam dates, are listed below for information. The workload, topics, and course requirements are subject to change at the discretion of the instructor (with proper notice to the student).

Date	Anticipated Topic(s)	Date	Anticipated Topic(s)
08/27	Introduction	10/24	A brief history of the Universe (The Big Bang)
08/29	The Earth and the Cosmos	10/29	A brief history of the Universe (The Big Bang)
09/03	The Earth and the Cosmos	10/31	Star and planet formation
09/05	Light and matter	11/05	Star and planet formation
09/10	Apparent motion of celestial bodies	11/07	Giant planets and the outer solar system
09/12	Apparent motion of celestial bodies	11/12	Asteroids and comets
09/17	Apparent motion of celestial bodies	11/14	Asteroids and comets
09/19	**Quiz #1**	11/19	Space Exploration (Missions)
09/24	Newton's laws	11/21	Review + Space Exploration (Missions)
09/26	Newton's laws	**11/26**	**Quiz #3 (on D2L, no in-person class)**
10/01	Newton's laws	**11/28**	**Thanksgiving (no class)**
10/03	Newton's laws & Gravity	12/03	Exoplanets, Habitable worlds and life in the Universe
10/08	Newton's laws & Gravity	12/05	Recap – Big Picture
10/10	The sun and stars	12/10	NASA OSIRIS-REx Mission (Guest Lecture: Prof. Jessica Barnes)
10/15	The sun and stars (**recorded on D2L, no in-person class**)	**12/12**	**Reading Day (no class)**
10/17	**Quiz #2 (on D2L, no in-person class)**	**12/17**	**Final Exam**
10/22	Radiation and Electromagnetic Spectrum	12/19	

Absence and Class Participation Policy

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

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, http://policy.arizona.edu/human-resources/religious-accommodation-policy

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: http://policy.arizona.edu/employmenthuman-resources/attendance

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible.

To request disability-related accommodation according to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are

experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

Makeup Policy for Students Who Register Late

Late course registrations will be considered on a case-by-case basis. Students who want to register late to the course should email the instructor to discuss potential options (and the timeline) to make up missed assignments/quizzes.

Classroom Behavior Policy, Course Climate and Inclusion Statement

All UA courses adhere to the general UA Policies as stated on the institutional websites: https://catalog.arizona.edu/policies. Please make yourself familiar with the Student Code of Academic Integrity and the protocol ensuring non-discriminatory, anti-harassment, non-threatening learning experiences.

Students and instructors share responsibility for fostering a positive learning environment. We want a safe, welcoming, and inclusive environment where everyone feels 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, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

The use of laptops, iPads, and other such mobile devices is not permitted in class for any other purposes other than those directly related to the course (in-class activity or note taking).

Posting videos, photos or recordings of lectures online or distributing them by any other media format is strictly prohibited (this includes social media forums). Materials available through D2L must not be distributed in public without explicit permission. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension and civil action.

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

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; https://drc.arizona.edu) 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 the lecture 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: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

The University Libraries have some excellent tips for avoiding plagiarism, available at http://new.library.arizona.edu/research/citing/plagiarism.

In this course, generative artificial intelligence/large-language-models tools, such as ChatGPT, Dall-e, Bard, Bing, and Grammarly, may be used to spell check or improve writing assignments with appropriate acknowledgment and citation. Your use of AI tools or content must be acknowledged or cited. If you do not acknowledge or cite your use of an AI tool, what you submit will be considered a form of cheating or plagiarism. You are not permitted to enter all or any part of an assignment statement or test questions as part of a prompt to a large language model AI tool. 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's detection tool is integrated into the Brightspace D2L learning management system.

Zoom recordings are part of the student's educational record. Selling and/or sharing class notes, ZOOM recordings, and/or other course materials to other students or to any third party 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.

Nondiscrimination and Anti-harassment Policy

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

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.

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
http://deanofstudents.arizona.edu/student-assistance/students/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@email.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@email.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* 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.

Preferred Gender Pronoun

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is on the class roster, please let me know. Feel free to correct instructors on your preferred gender pronoun. If you have any questions or concerns, please do not hesitate to contact me directly in class or via email (instructor email). If you wish to change your preferred name or pronoun in the UAccess system, please use the following guidelines:

- **Preferred name:** University of Arizona students may choose to identify themselves within the University community using a preferred first name that differs from their official/legal name. A student's preferred name will appear instead of the person's official/legal first name in select University-related systems and documents, provided that the name is not being used for the purpose of misrepresentation. Students are able to update their preferred names in UAccess.
- **Pronouns:** Students may designate pronouns they use to identify themselves. Instructors and staff are encouraged to use pronouns for people that they use for themselves as a sign of respect and inclusion. Students are able to update and edit their pronouns in UAccess.
- More information on updating your preferred name and pronouns is available on the Office of the Registrar site at https://www.registrar.arizona.edu/.

Confidentiality of Student Records

http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa

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.