

ASTR 250 Fundamentals of Astronomy, Fall 2021

MWF 10-10:50 AM in Steward Observatory Room 204

Prof. Ann Zabludoff (Instructor), Mr. Pranjal Rajendra Singh (Teaching Assistant)

Office Hours: T 3-4 pm and Th 2-3 pm (Singh) in Steward Observatory courtyard or Room 203 or via Zoom at <https://arizona.zoom.us/j/3421522781>, depending on evolving university policy; W after class (Zabludoff) in Steward Observatory courtyard or Room 207 or via Zoom at <https://arizona.zoom.us/j/6429540121>.

This is an introductory course in astronomy and astrophysics for astronomy majors and other science majors with strong interests in astronomy, physics, and mathematics. The class covers most aspects of astronomy, including stars, galaxies, and cosmology, but with a more rigorous physical and mathematical treatment than in a General Education Natural Science class. The course focuses on the application of mathematical and physical principles to astronomical problems—so there will be lots of problem sets handed out as homework assignments. The emphasis of the course is on understanding, not on memorization.

Background

Prerequisites: MATH 129 (Calc II) and PHYS 141 or 161H.

You should be comfortable with basic algebra, trigonometry, calculus, vectors, and scientific notation. The development of basic physical concepts as they relate to the detection and workings of astronomical objects will be a basic part of the course. You should have a calculator at your disposal (one that does powers, roots, and trigonometric functions). Please seek help when you encounter a concept that you do not understand.

Evaluation

Your grade in this course will depend on your performance on the problem sets (40% in total), midterm exam (20%), the final exam (40%), and, in the case of a borderline grade, your class participation. The exams will consist of multiple-choice questions, short written essays, and/or mathematical problems. Your worst homework will be discarded. **The midterm exam is on Oct 15 at 10-10:50 am. The final exam is on Dec 10 from 10:30 am-12:30 pm.**

COVID-Related Policies

This class is scheduled to be taught in the IN-PERSON modality. At few classes may be taught via Zoom at <https://arizona.zoom.us/j/6429540121> when the instructor has a conflict. Check Zoom meeting schedule for updates.

Face coverings are REQUIRED in our classroom and when meeting for in-person office hours. Per CDC guidelines, face coverings that cover the nose, mouth, and chin must be worn in all learning spaces at the University of Arizona (e.g., in classrooms, laboratories and studios), even for those

who are vaccinated. Please consider getting vaccinated if you have not already done so to protect yourself, your peers, and others in our community.

- **If you feel sick, or may have been in contact with someone who is infectious, stay home.** Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructor(s) if you will be missing a course meeting or an assignment deadline.
- Non-attendance for any reason does not guarantee an automatic extension of due date or rescheduling of examinations/assessments.
- Please communicate and coordinate any request directly with your instructor.
- If you must miss the equivalent of more than one week of class, contact the Dean of Students Office: DOS-deanofstudents@email.arizona.edu to share documentation about the challenges you are facing.
- **Voluntary, free, and convenient COVID-19 testing is available for students on Main Campus.**
- If you test positive for COVID-19 and you are participating in on-campus activities, you must report your results to Campus Health. To learn more about the process for reporting a positive test, visit the [Case Notification Protocol](#).
- **COVID-19 vaccine is available for all students at Campus Health.**
- Visit the [UArizona COVID-19 page](#) for regular updates.

Academic advising. If you have questions about your academic progress this semester, please reach out to your academic advisor (<https://advising.arizona.edu/advisors/major>). Contact the Advising Resource Center (<https://advising.arizona.edu/>) for all general advising questions and referral assistance. Call 520-626-8667 or email to advising@arizona.edu.

Life challenges. If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. [The Dean of Students Office](#) can be reached at (520) 621-2057 or DOS-deanofstudents@email.arizona.edu.

Physical and mental-health challenges. If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520) 621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.

For any lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. 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 ([Code of Academic Integrity](#) and the [Student Code of Conduct](#)) are also subject to civil action.

General Policies

Do your own work. Modern science is collaborative, and people learn from talking to each other. Feel free to talk to the instructor, TA, or other students about homework assignments. But the work you turn in must be your own. The instructor subscribes to the [University's Code of Academic Integrity](#). The Code prohibits all forms of academic dishonesty, including cheating, plagiarism, and facilitating dishonesty by others. The repercussions for those found guilty of violating the Code will include loss of credit for the work and may include failure of the course or more extreme measures.

Attendance and participation in class are important—especially as the exam and homework material will be drawn from the lectures, and only supplemented from the textbook. Students who are regularly absent will be administratively dropped from the course. You are strongly encouraged to participate in class by asking questions.

Late Homework. No credit will be given for late homework. Because we want to be fair to those that turn in work on time, we will not accept late work. There is an absolute deadline for homework.

Missed Tests. No makeup tests will be administered. The exams are already scheduled and posted on the class schedule. If you know that you will miss an test, you must make arrangements (for valid reasons) for an oral exam at a time and date *prior* to the written test. Missing the midterm exam is an automatic loss of 20% of your course grade. Missing the final is a loss of 40%.

Grading. You have one week from the time an assignment or exam is returned to challenge any perceived errors. Although rare, there are occasions when grading errors occur, and you should review your returned work. The final course grades will be on a curve, but you can be assured that if you have > 90% of the total number of points available you will receive an A, 80 to 90% at least a B, 70 to 80% at least a C.

Students with Disabilities. If you anticipate barriers related to the format or requirements of this course, please meet with the instructor so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; drc.arizona.edu) and notify the instructor of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Learning Outcomes. Upon successful completion of the course, students will be able to apply basic physics concepts to certain astronomy problems and to understand the physical scales, masses, lifetimes, and other properties associated with a wide variety of astrophysical phenomena.

Tutoring

The UA Astronomy Department's free ATOMM: Astronomy Tutoring for Majors and Minors program will meet multiple times per week in Steward Observatory Room 208: Yujin Qin [MW from 3:30-5 pm] and Gabriele Bozzola [Th 4-6 pm].

Also, check out the TIMESTEP program, a bi-weekly discussion group about topics of professional development for UA undergraduates in STEM fields. And, we have the world's best Astronomy Club!

Textbook

Our strongly recommended textbook is *Foundations of Astrophysics* by Ryden and Peterson. It can now be purchased via Google Play or Amazon.

A free, on-line reference for basic Gen Ed-level background is Astronomy.