

SYLLABUS
Astronomy 250
The University of Arizona

“Space is big. You just won’t believe how vastly, hugely, mind-bogglingly big it is. I mean, you may think it’s a long way down the road to the chemist’s, but that’s just peanuts to space.”
–Douglas Adams

Contact Details: Dr. Brenda Frye
Steward Observatory 336
Email: bfrye@as.arizona.edu
Office hours: Mondays & Wednesdays 11 am -12 noon, or by appointment

TA: Melissa Halford
Steward Observatory (Room 302)
Email: mhalford@email.arizona.edu
Office hours: Tuesdays & Thursdays 10 am - 11 am

LECTURES: Mon-Wed-Fri from 10:00 - 10:50 am in the Steward Observatory, Room 204

COURSE DESCRIPTION

This is a challenging class in which we will study objects and phenomena relating to the solar system, extrasolar planets, stars and galaxies and cosmology. We will introduce basic concepts used in physics, chemistry, geology and biology needed to better study these objects and related astrophysics concepts. We will make use of mathematical tools at the level of calculus to gain insight into the physics relevant to astrophysics.

LEARNING OUTCOMES

Upon successful completion of the lectures, a student will be able:

- to understand some basic physics concepts and apply them to astronomy problems
- to gain a knowledge of the physical scales, masses, sizes, lifetimes and other properties associated with a wide variety of astronomical objects and phenomena
- to analyze the results of the observing activities and discussions to better understand topics presented within this course

These learning outcomes will be met through attendance of lectures, writing assignments, in-class activities, observing, and in-class exams.

OFFICE HOURS and EMAIL

Dr. Frye’s office hours are in Steward Observatory 336 and by appointment. To best serve this class, the following email response policy will be followed. In general, emails to the professor will be answered only during office hours, unless they are urgent in nature.

GRADES

Your final course grade will be calculated as follows:

Assessment	Percentage
Midterms	30
Writing Assignments and Labs	30
Final	40

Attendance will not be taken at every class, and experience shows that the “A” students are those who attend all the classes.

The UAs policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://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: <https://deanofstudents.arizona.edu/absences>

REQUIRED TEXT AND READINGS

“Foundations of Astrophysics,” by Barbara Ryden. You will be assigned regular readings and assignments from the textbook which you are expected to do prior to coming to lectures.

COURSE WEBSITE: Desire to Learn (D2L)

This is your first stop to get assignment due dates, class announcements, copies of lectures and laboratory and writing assignments. To access d2L, go to the website, d2l.arizona.edu and click on ‘User Login.’

LECTURES

“Practice does not make perfect. Only perfect practice makes perfect.”

–Vince Lombardi

To accomplish our learning goals, **lectures will move at a pace intended to build and expand upon the assigned reading material**, rather than to introduce material for the first time. Your participation is encouraged during the lecture. While reading your textbook is a good start, it will not be sufficient to do well on the exams. This is because there is significantly more information in this course than can be obtained by passive reading and/or memorizing vocabulary. The lectures are intended to teach you how to think about the conceptionally rich topics that you have read in your textbook. at the required level to do well on the exams. Even at their best, the lectures can only cover a subset of the required material at the level that you will need in order to do well on the exams, thereby requiring extra reading, thought and/or discussion outside of class. A list of lecture topics appears below:

OBSERVATIONS

You will have the opportunity to visit our telescope on the roof of Steward Observatory’s telescope building, and it is required that you go at least one time and submit the observing

worksheet provided. It is highly recommended to go to early, as observing sessions may be canceled with very little notice or even *during* your session. Merely attempting to go one or even several times, but not completing the observation will not count for credit. Note if you know in advance that you will be unable to attend ANY observing sessions then please see ASAP. Observing is available every MTuWTh excluding major holidays.

Week	Topics
Aug 22, 24 & 26	Syllabus; Chapters 1 and 2
Aug 29, 31 & Sep 2	Chapters 3 and 4
Sep 7 & 9	Chapters 5 and 6 (no class Sep 7)
Sep 12, 14 & 16	Chapters 7, and 8
Sep 19, 21 & 23	Chapter 9, Midterm 1
Sep 26, 28 & 30	Chapters 10 and 11
Oct 3, 5 & 7	Chapters 12 and 13
Oct 10, 12 & 14	Chapters 14 and 15
Oct 17, 19 & 21	Chapter 16
Oct 24, 26 & 28	Midterm 2
Oct 31, Nov 2 & 4	Chapters 17 and 18
Nov 7 & 9	Chapters 19 and 20
Nov 14, 16 & 18	Chapters 21 and 22
Nov 21 & 23	Chapter 23 (no class on Nov 27)
Nov 28, 30, & Dec 2	Midterm 3, Chapter 24
Dec 5 & 7 (last day)	Chapter 24 (Cont'd.), review
Dec 9 (Friday)	Final exam 10:30 am - 12:30 pm in Steward Observatory room 204

HOMEWORK

There will be regular homework assignments. Please feel free to collaborate, but in the end you must do your own work. **All writing assignments should be submitted in-class before the start of class.** Assignments may also be turned in prior to the due date. Late assignments, or assignments submitted elsewhere (my mailbox, for example) will not be accepted as such administration becomes too unwieldy for a class of this size. If there is a true emergency, then please let me know as soon as possible. To accommodate the inevitable problems with turning in homework on time, I will adopt the following policy: the lowest homework score will be dropped.

EXAMINATIONS

There will be three in-class midterms, and one final exam. All exams will be closed notes and closed book. Cell phones, laptops, and all other handheld devices must be turned off and put out of sight. This is not the time to test me with regards to cheating. There will not be makeup exams in this course. To help account for this, I will drop the lowest midterm score at the end of the semester. If you miss a midterm then you will receive a grade of "0" and this one score will be dropped from the calculation of the final grade. It is not advisable to miss the final exam for any reason. An unexcused absence from the final will result in an F for the entire course.

ACADEMIC HONESTY

I follow the policies outlined in the Dean of Students code of academic integrity, including cases of plagiarism and cheating (see <http://deanofstudents.arizona.edu>). I strongly encourage

you to work with your peers on the homework assignments. Such collaborations can include discussion of the qualitative concepts and on the mathematics, but in the end you must write-up and submit your own work using your own words. If an assignment even only *appears* to be copied from someone else, or copied from a source without a reference, or copied from a referenced source and only a few words changed then the assignment will be assumed to be plagiarized. I will give a grade of “F” for the assignment, and further to that the Dean may assign a grade of “F” for the whole course and/or pursue a more stringent repercussion.

Note that copying large amounts of text even with proper references will result in a low grade. One can avoid such ‘lazy writing’ by talking over what you intend to write with a peer, your teaching assistant or professor, through email or conversations during office hours, until there is enough confidence in your answer that you can write the answer down on paper in your own words. Another trick is to use direct quotations that are short and infrequent.

Cheating is the second type of serious infraction. Some examples include: cheating on an exam, use of electronic devices or translators without prior consent from your professor, substituting someone else to take an exam and changing an answer to an exam/assignment after the document has been returned to you.

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>.

ATTENDANCE AND CLASSROOM ETIQUETTE

Students are expected to attend all lectures, and the required observing session. Please turn off cell phones in class, and refrain from extraneous talking, distracting/discourteous behavior, distracting use of laptops/cell phones, and coming late and/or leaving early. Please bring your clickers to class each day as the clickers will be used to take attendance. If you are interested to use a laptop or other electronic device (cell phone, electronic tablet) to take notes during the lecture you are requested to sit in the first two rows of the lecture hall.

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>. Required: The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

WRITING ASSIGNMENTS

You will have a few opportunities to communicate scientific ideas through writing assignments. Here are a few more details about the various writing assignments. The write-ups will be graded according to the formula used in the Writing Program of the Department of English: Content (50%), Organization (20%), Expression (20%), Mechanics (10%). All writing must be single-spaced and with a maximum font size of 12 pt and no smaller than 11 pt. Handwritten assignments are technically acceptable, but will be returned if they are illegible.

All writing assignments should be submitted in-class before the start of class. Assignments may also be turned in prior to the due date. Late assignments, or assignments

submitted elsewhere (my mailbox, for example) will not be accepted as such administration becomes too unwieldy for a class of this size.

ASSISTANCE

I and my TA are here to help you, so please take advantage of office hours. We want to get to know you, so you are very welcome to stop by to introduce yourself. See Page 1 of this syllabus for our contact details. Please contact me promptly if you have any questions or concerns regarding this class. If you would like extra tutoring you may attend the FREE weekly astronomy tutoring “Think Tank.” Please see me for details regarding the dates/times.

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>.

From experience, students find this to be challenging class, and in a rewarding way. I am delighted to be able to teach this course, and am looking forward getting to know you and to learn from you as well. Good luck!

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.