

The Physical Universe

Syllabus: ASTR 170B1, Fall 2014

Se. 5 & 6: TTh: 9:30-10:45am, Steward Observatory, N210

Instructor

Professor Walker, Office Hours: TTh 3-4pm, S.O. 211, 621-8783, cwalker@as.arizona.edu

T.A.

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(Office hours can also be made by appointment.)

Course Description

This course presents an introduction to the science of Astronomy placed in the broader context of the physical sciences. Our survey of the Universe will include our current understanding of our Solar System, stars, the Milky Way Galaxy, other galaxies, and the large-scale structure and evolution of the Universe. We will also cover the basic principles of physics, chemistry, and geology needed to interpret astronomical observations. The application of the scientific method will be emphasized throughout the course.

Approved as: Tier One: Natural Sciences (NATS)

Prerequisites: None

Course Work and Grading Policies: No Late Work is accepted.
Grading will be based on a percentage of final points as follows:

90-100 A
80-89.9 B
70-79.9 C
60-69.9 D

The percentage breakdown is as follows:

2 - Midterms	50%
1 - Final Exam	25%
Readiness Quizzes	5%
4 - in-class Lab Exercises	20%
Extra Credit	1/2% each, up to 3%

Grades and class announcements will be posted on the course D2L web site. Please check the site before each class.

Midterms/Exams

There are three midterms and a final. The top two midterms will be counted toward your course grade. Each of your top two midterms is worth 25% of your course grade. The final exam is cumulative and worth 25% of your course grade. If you miss any midterm or the final exam, it will be counted as 0%. No early or make-up midterms will be given without providing us with a Dean's Excuse well in advance of the exam. You cannot be excused from the final exam, and cannot take it at a different time. You are required to bring a pencil and a State- or University-issued photo ID to each exam.

Dates:

Midterm 1: Sept. 18th (Thursday)

Midterm 2: Oct. 16th (Thursday)

Midterm 3: Nov. 20th (Thursday)

Final Exam: Wednesday, Dec. 17th, 2014, 10:30am-12:30pm (same room)

Lab Exercises

There are 4 in-class lab exercises. Every student is expected to do each lab exercise. Each lab exercise will be worth 5% of your course grade. The labs will be conducted on the following days:

Sept. 11 th	Spectroscopy Lab
Oct. 2 nd	Mars Lab
Oct. 23 rd	Solar Flux Lab
Nov. 25 th	Galaxies Lab

On the day of the lab exercise we will all meet in N210 for a general overview and then split into groups to conduct the lab.

If you work with one or more students in doing the labs, their names must appear under the heading 'Collaborators' at the top of your lab. Each student must turn in a complete lab written in their own words, not just a copy of a group effort. The midterms and final will have questions on them pertaining to the lab exercises, so you should be sure to understand what you turn in. The labs will be turned in on the date specified in class.

Readiness Quizzes

A short readiness quiz will be given at the beginning of most classes. The quiz will contain 1 or 2 short answer questions covering the material presented in the previous lecture. Readiness Quizzes will count toward 5% of your final grade. You are required to bring paper and pencil to each class for the Readiness Quizzes. A full sheet of paper must be used. Partial sheets of paper will not be accepted. There are no make-up Readiness Quizzes.

Extra Credit

For extra credit students may attend the Steward Observatory Public Evening Lecture Series. These lectures are held at 7:30pm on the date specified and last about an hour. They are located in your classroom, N210, in Steward Observatory. Each extra credit event comprises up to 1/2% added on to your course grade for a total of up to 3% added on to your course grade. To

get credit for an extra credit event, you will be required to hand in a **one page typed write-up** summarizing the lecture. The write-up will be due in class within one week of the lecture. Additionally, in order to provide proof of attendance, the host (not the speaker) of these lectures must stamp or sign your lecture notes after the talk. These notes with the stamp or signature must be handed in with your summary of the lecture.

Following the talks, there are opportunities for viewing the night sky (weather permitting) with the use of the 21-inch telescope. All lectures and the use of the telescope afterward are free of charge.

The dates for these lectures are online at:
<https://www.as.arizona.edu/public-evening-lecture-series>

If you cannot attend these lectures, but would still like to receive extra credit, you may want to consider attending lectures from the LPL evening lecture series, which are posted on their website at <http://www.lpl.arizona.edu/outreach/events> as they are planned. You may also summarize scientific articles related to a topic in our class from scientific magazines such as *Science*, *National Geographic*, and *Nature*, just to name a few. Please make sure to explain how the article is related to our class and attach a copy of the article to the summary you hand in. No more than two extra credits may be handed in during one class and no more than a total of six for the entire semester.

Course Materials

1. Understanding Our Universe by Palen, Kay, Smith, and Blumenthal; ISBN: 978-0-393-91210-4; ebook version
2. Calculator with scientific notation
3. Ruler or straight-edge

Classroom Conduct Policy

Respect your fellow classmates and their learning! All phones should be turned off and put away during class. If you wish to use a computer to take notes, you will be asked to sit in a designated section of the classroom. Otherwise, all computers should be off. No talking is allowed in class except during authorized activities. Violators will be asked to leave the class.

Absence Policies

Attending lecture is an integral part of this course. We will be covering approximately 1 chapter of material per lecture. If you cannot routinely attend lecture, your performance in the course will suffer. Absences for holidays or special events observed by organized religions will be excused for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Dean's designee) will also be excused. Should you have a conflict with any of the midterms for one of these reasons, please see us immediately.

Academic Integrity

In science, we depend on good faith efforts to report as fully and accurately as possible observations, measurements, and experiments. Presentation of any work other than your own is considered academic dishonesty. This includes copying assignments from others and any other

form of cheating or plagiarism. Note in particular that if you substitute a prediction, however derived, for an actual observation or measurement, you are guilty of scientific fraud. We expect that all of the work you present for evaluation is in fact your own and that you will not give or receive unauthorized assistance in any academic exercise. Be careful of collaborations in which each participant does not contribute the full quota of independent work. If any penalty has to be assessed for a breach of integrity, the University requires official reports to be made to protect the rights of everyone involved. Expect University policy to be followed strictly in all matters of academic integrity.

In short, as a rule of thumb, ask yourself if you would want your instructor there when you collaborate. If not, you're probably cheating. Penalties for cheating range from zero credit on the assignment to failure of the course.

Students with Disabilities

Students with disabilities who require reasonable accommodation should provide us with the proper documentation from the Disability Resource Center. All information will remain confidential and be used only to help in accommodating the student.

Approximate Course Outline and Calendar*

<u>Understanding our Universe</u>	<u>Chapter</u>
Aug. 26, 28	1 & 2
Sept. 2, 4	3 & 4
Sept. 9, <u>11^L</u>	5
Sept. 16, <u>18^M</u>	6
Sept. 23, 25	7 & 8
Sept., 30, Oct. <u>2^L</u>	9
Oct. 7, 9	10 & 11
Oct. 14, <u>16^M</u>	12
Oct. 21, <u>23^L</u>	13
Oct. 28, 30	14 & 15
Nov. 11 (noclass), 6	16
Nov. 18, <u>20^M</u>	17
Nov. <u>25^L</u> , Nov. 27 (no class)	
Dec. 2, 4	18, catch-up day
Dec. 9	Review
Dec. 17 (Wednesday)	Final: 10:30am -12:30pm

^L = **Lab Day**

^M = **Midterm Day**

*Lectures are subject to change depending on the pace of the class.