

University of Pittsburgh

ASTRONOMY 0088:

From Stonehenge to Hubble

Class Times: Wednesdays 6:00 – 8:30 pm

Class Location: Thaw Hall Room 104

Spring Semester: 01/8 to 4/28/2017

Instructor: Diane Turnshek; cell phone: 724-433-4192; email: dianet@pitt.edu

Mailbox location: first floor of Allen Hall

Office hours: by appointment at Pitt in 506 Allen Hall or at CMU in 2200 Doherty Hall.

I should be able to respond to emailed inquiries within one day.

- **Textbook:** Discovering the Cosmos, 2nd Edition, by R. C. Bless
- **Paperback:** 768 pages
- **Published:** December 28, 2012
- **ISBN-10:** 1891389718
- **ISBN-13:** 978-1891389719

The current good used paperback price on Amazon starts from \$24. Copies are on reserve in the Pitt Hillman and Benedum libraries. Note that we're using the 2nd edition, which is vastly different from the 1st edition.

We will also be using the 2016 free astronomy college textbook at:

<https://openstax.org/details/astronomy>

The teaching assistant for recitation section (8:30 to 9:20 pm) is

Catherine Elena Fielder, <cef41@pitt.edu>

Office Hour: Tuesday 11:00 am – 12:00 pm

Office: 300 Allen Hall

Office phone: 412-624-9096

Study Guide

The study guide for ASTRONOMY 0088 is on the CourseWeb site, along with the PowerPoints slides. The study guide is designed for a class that meets only three times during the semester and this syllabus is more accurate in describing the organizational details of this particular class.

Course Description

This is a self-contained course for students not majoring in the physical sciences. The course is mostly descriptive in nature, but some of the lectures will make use of simple arithmetic and geometry since astronomy is a quantitative science.

The course focuses on an historical perspective of our current understanding of our place in the Universe and practical astronomy. We start with a discussion of the earliest views of our Universe and the process of scientific discovery. This takes us from an Earth-centered Universe to a Sun-centered Universe up to the time of Newton.

Practical astronomy topics include phenomena that can be readily observed with the unaided eye or a small telescope and the use of small telescopes for astronomical observations. The historical perspective then continues with a discussion of our modern view of the Universe, from successive realizations that the Sun is not at its center, that our Milky Way Galaxy is not at its center, and that we live in one galaxy in an expanding Universe of over 100 billion galaxies. The modern triumph of the Big Bang Theory for the origin of the Universe over the Steady State Theory is also discussed. Finally, we conclude with discussions of unmanned space exploration of the Solar System and the possibility of life elsewhere in the Universe.

Two Course Sequence: A two-course science sequence in astronomy can be formed by taking ASTRONOMY 0088 with ASTRONOMY 0089 (Stars, Galaxies, and the Cosmos) or ASTRONOMY 0087 (Basics of Space Flight) in any order. Stars, Galaxies, and the Cosmos gives a more phenomenological and astrophysical perspective on astronomy than does this course. More advanced undergraduate courses in astronomy are also available.

Science or Engineering Majors: Instead of ASTRONOMY 0088 or ASTRONOMY 0089, students with a science background would be better served by taking ASTRONOMY 0113 (Introduction to Astronomy).

Assigned Reading

Students can read those sections of the textbook that are currently being covered in class. Reading assignments are given in the study guide notes.

Grades

Students must bring their ID cards to three tests and the final test. The four tests will all have equal value. The first three tests will not be cumulative; they will cover approximately one-third of the course material each. The final test will be cumulative. Each of the tests will have fifty questions, possibly multiple-choice, T/F, ranking and matching. Tests make up 75% of your grade.

Two questions on the first test will come directly from the material on this syllabus, so you are encouraged to read it carefully. There will not be syllabus questions on any of the other tests or the final test.

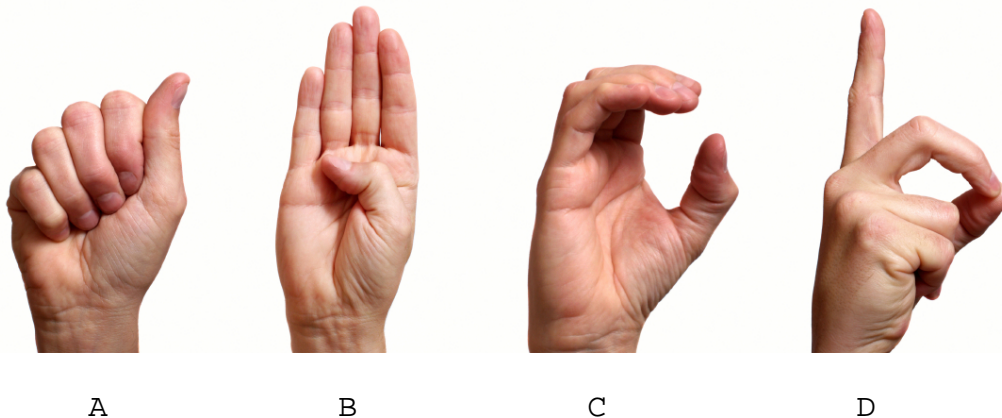
We may use IF-AT sheets for the tests. We'll practice using these scratch-off test answer sheets in class. The advantages of this method are many – students get to see the answer

while they are invested in the question, increasing learning. The option to give extra credit presents itself in the selection of second choice answers (if students get a question right on the second try). The tests correct themselves and students can see their score immediately. You do not have to use the scratch-off sheets if you do not want to.
<http://www.epsteineducation.com/home/about/>

Make-up tests will be given under special circumstances at the convenience of the TA. If you know in advance that you will miss a test, please let us know beforehand. Anyone missing two tests will need to have a doctor's excuse or a university sanctioned letter before they are allowed to make up the second test.

Weekly assignments will be given out in recitation. They will make up 20% of your grade.

Some American Sign Language will be useful to know during lectures (to answer verbal multiple choice questions):



Allegheny Observatory is part of the University of Pittsburgh's Department of Physics and Astronomy. 5% of your grade will be based on a one paragraph report describing your Allegheny Observatory trip, accompanied by the attendance card given out during the tour. Buses leave from in front of Allen Hall on O'Hara Street on select nights and provide transportation for Pitt students wishing to attend on Observatory tour. The buses return three hours later, but the departure times change during the semester since they're tied to sunset times. More information on the tours will be given out in class. Anyone who can sufficiently demonstrate to me that they have previously attended an Allegheny Observatory tour will be exempt from this assignment.

Your final grade will be determined from the curve of the distribution of all final student grades. For all undergraduates in undergraduate courses, a grade of C or above indicates satisfactory performance and indicates that the student is prepared to take undergraduate courses for which this course is a prerequisite. A grade of C- or below indicates unsatisfactory performance and students should not take courses for which this course is a prerequisite without further work.

Tests will be given on the following dates:

- Test 1: (Units 1 - 8) February 7
- Test 2: (Units 9 - 16) March 21
- Test 3: (Units 17 - 25) April 18
- Cumulative Final Test: April 25

No class on March 7 for Spring Break. <http://www.registrar.pitt.edu/calendars.html>

Student Rationale and Learning Objectives

Students should leave the class with a basic understanding of the scientific method, the processes involved in scientific inquiry and the ability to learn on their own to keep up with changing views and scientific developments. Upon completing the course, students should be able to read articles in the press about astronomical topics ranging from solar system objects to cosmology (the study of the universe as a whole). One of the goals of the class is to produce scientifically educated voters. Students should know enough about observing and telescopes to be able to enjoy the Moon and the night sky, be able to orient themselves, point out constellations and find planets. They should fully appreciate our position in the Universe, with its associated historical relevance.

Academic Honesty

All students are expected to observe the same code of academic honesty required of all University of Pittsburgh students. The conduct below constitutes a violation of this code.

- Taking of information – copying assignments or exam answers from another student. All work must be the student's own work.
- Tendering of information – Giving your work to another student to be copied.
- Plagiarism – From the University of Pittsburgh's guidelines on academic integrity: "To present as one's own work, the ideas, representations, or words of another, or to permit another to present one's own work without customary and proper acknowledgement of sources."

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

Disability Services

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and Disability Resources and Services no later than the second week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations.

To notify Disability Resources and Services, call (412) 648-7890 (Voice or TTD) to schedule an appointment. The Disability Resources and Services office is located in 140 William Pitt Union on the Oakland campus.

Accessibility

Blackboard is ADA Compliant and has fully implemented the final accessibility standards for electronic and information technology covered by Section 508 of the Rehabilitation Act Amendments of 1998. Please note that, due to the flexibility provided in this product, it is possible for some material to inadvertently fall outside of these guidelines.

Copyright Notice

These materials may be protected by copyright. United States copyright law, 17 USC section 101, et seq., in addition to University policy and procedures, prohibit unauthorized duplication or retransmission of course materials. See Library of Congress Copyright Office and the University Copyright Policy.

Statement on Classroom Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Power outage policy

If the school website is down, notification will occur via the campus alert system and local media outlets. Students are encouraged to verify that the problem is with the school not their personal computer connections. In this case, accommodations will be made on an individual class basis, including possible delay of assignment due dates and reduced workload.

Cautions

If you have the flu, please notify me by phone or e-mail and stay home for 24 hours after the fever has gone. If I have the flu and I can't get someone to cover for me, I'll have to cancel class. In this case, I will send an email from Blackboard. Get in the habit of checking email every day before class. Let's be safe.

Distractions

Studies show that texting while in class causes students to suffer a loss of learning that translates to one letter grade lower for the class. Also, unexpected noises and movements automatically divert and capture people's attention, which means you are affecting everyone's learning experience if your cell phone, pager, laptop, etc. makes noises or is visually distracting during class. Please do not disrupt other students' learning. If you absolutely must play games on a laptop during class, please sit in the back row.

Welcome

I'm looking forward to getting to know you all.

To be successful in this class, you should commit eight to twelve hours a week to working on reading the material and studying, plan to check email frequently during the semester and let me know immediately if there's a problem. I'm easy to reach by phone or email. Also, please reach out to your fellow students. Study groups have been shown to benefit every type of student and I highly recommend them.

I hope we can all work together to get the most out of this experience.

~Diane