

Course Information

Astronomy 110 (Section 2)
Survey of Astronomy
Monday, Wednesday, & Friday, 9.30 - 10.20 am
Watanabe Hall, Room 112
University of Hawaii at Manoa
Autumn term 2008

Dr. R. D. Joseph
IfA Office phone: 956-8531
E-mail: joseph@ifa.hawaii.edu
Web: <http://www.ifa.hawaii.edu/~joseph/>
Watanabe Hall office: Room 401
IfA office: Room C-120

Teaching Staff

This section of Astronomy 110 will be given by Prof. R. D. (Bob) Joseph. After receiving his Ph.D. in physics at Washington University (St. Louis), he then spent 18 years on the physics faculty at the Imperial College of Science, Technology and Medicine (University of London) before joining the faculty of the University of Hawaii's Institute for Astronomy (IfA) in 1989. He was also the Director of the NASA Infrared Telescope Facility (IRTF) on Mauna Kea from 1989-2000, and recently finished a term as the IfA Faculty Chair. More information on his history and interests may be found in the "Potted Bio" on his website at: <http://www.ifa.hawaii.edu/~joseph/>.

Prof. Joseph's main office is in Room C-120 of the Institute for Astronomy at 2680 Woodlawn Drive, 100 meters *makai* of the Manoa Marketplace (a five-minute ride on the Rainbow Shuttle from the main Manoa campus).

Mr. Justin Troyer is the Teaching Assistant for this course. He has a B.Sc. degree from Purdue University, and is working toward his Ph.D. in Astronomy. E-mail at troyer@ifa.hawaii.edu.

Office Hours

Prof. Joseph: MWF 8.30-9.20 a.m. in Watanabe 401. ***No appointment is required.*** Or, by appointment, at my IfA office. You are *encouraged* to come to ask questions about the course, discuss larger intellectual, University, or personal issues, or just to have a general conversation and get to know each other.

Mr. Troyer: TBD.

Course materials

The course materials consist of:

- 1) a CD-ROM with an electronic version of the textbook, *The Essential Cosmic Perspective* by Bennett, Donahue, Schneider & Voit, 4 edn., Pearson/Addison-Wesley, 2008. I will refer to this as “the textbook.”
- 2) an access kit for the associated Mastering Astronomy website for this text, and
- 3) the *Astronomy Media Workbook* by Michael C. LoPresto, 5th edn., Pearson/Addison-Wesley, 2007.

These come as a single package and are available in the UH Manoa Bookshop. I have been successful in negotiating with the publisher in getting these materials reduced to the minimum cost of \$75 (the paper edition of the text alone would cost about \$110).

Relation of Text to Lectures

The examinable content of this course is defined by what is presented in the lectures, reading assignments, and homework exercises. There is more material in the textbook than will be covered in the lectures, and some of the material presented in the lectures will not be found in the textbook. A reading assignment for each lecture is given in the accompanying syllabus.

Course Website

I will soon set up a website for the course at <http://laulima.hawaii.edu/>. You will be able to log into these pages using your UH account. This site contains the daily lecture schedule with textbook reading assignments for each lecture, and the schedule when each homework assignment must be submitted. Each day’s lecture notes will be posted here after the class in which they are given. This Course Information handout, files to be downloaded for additional reading, and a discussion board are also located on this site.

Interactive classroom activities

The Physics and Astronomy Department has provided a “classroom response system,” or “clickers” that we loan to each student for each class. (The alternative, which is done in many places, is to require students to purchase them.) These will be used in nearly every lecture. I will sprinkle “clicker questions” throughout my lectures by projecting them on the screen for students to answer using the clickers. The clicker technology enables us to see the answers in real time. Some questions will precede my lecture on a topic, so I better understand the preconceptions the class brings to that topic. Other questions will test factual retention, and still others will require thought to explore understanding of each concept. Students will be invited to think about the correct answers, then discuss their ideas with their neighbors, and finally use the clickers to give their answers. I can then assess the extent to which my lecture was successful. If there is substantial confusion I can then try to correct misunderstanding which has appeared. ***It should therefore be apparent that attendance at lectures is mandatory. A student will not be able to get the equivalent learning experience only by reading the textbook.***

Clicker guidelines

Students are asked to pick up a clicker when they enter the classroom each morning and return it when they leave the classroom. The clickers will be shared by several sections of the survey of astronomy course each day.

Mathematics

Students in Astronomy 110 often think of themselves as math and science phobic. This course is essentially a non-mathematical introduction to astronomy. However, astronomy is both a descriptive and a quantitative science. If we say only that some astronomical object is “big” or “far away,” we will not have got much beyond astronomy in the pre-Christian era. On the other hand, there isn’t much point in having you plug numbers into a formula and use a calculator correctly to get an answer. The principal use of math will be with functional relationships: for example, that the brightness of a given star decreases as the square of its distance from us.

You will need to be able to understand numbers in powers of ten notation, *e.g.* $3,000 = 3 \times 10^3$. This is necessary in astronomy to avoid spending all one’s time writing and counting zeros. Numerical values will be given in terms of metric units, which are used in science and in everyday life throughout the civilized world—except for the U.S.A. All this is reviewed in Appendix C of the textbook.

Examinations

The two mid-term exams and the final exam will consist mostly of multiple-choice questions. The latter will be computer-graded, so you must use No. 2 pencils for these exams, since the computer makes errors when trying to read marks made by harder pencils or ink. **Make certain you bring a pencil and a photo-ID with you to the exam.** We will check that students taking the exam are properly registered. You will be required to sign as well as print your name on your answer sheet. Failure to do so will result in a mark of zero for the exam. No latecomers will be admitted to the exam after one student has left the room.

Make-up exams will be offered only for serious emergencies. If you must miss an exam you must see Prof. Joseph as soon as you are able. Make-up exams, if permitted, will consist of essay-type questions. Permission to take make-up exams for athletics-related absences must be obtained in advance of the missed exam; otherwise no make-up exam will be offered. No athletics-related absences will be permitted for the final exam. The mid-term exams will each count for 20%, and the final for 40% of the course grade. Each mid-term exam will cover approximately the previous third of the course material. The first half of the final exam will be over the last third of the course material, and the second half of the final exam will be over the entire course.

Homework

Homework assignments will be set approximately every other class day. ***The content of the homeworks is part of the examinable material of the course. Homework answers are collected at the beginning of each class, and late homeworks will not be accepted,*** even if the dog ate your paper. ***Late homework papers will not be accepted.*** The homework assignments are based on interactive animations on the textbook's website Mastering Astronomy, and are generally engaging and assist learning the concepts of the course. They have been very popular with students in past years. The average of the homework marks will count for 20% of the final grade; *i.e.* the homeworks are equal in importance to one of the mid-term exams.

Marking (Grading)

Homework average 20%
 First Mid-term 20%
 Second Mid-term 20%
 Final Exam 40%.

Grades will be based on a "curve." Typically about 15-20% receive an A, 25-30% a B, 40-45% a C, and 10% a D.

Studying for this course

In the syllabus which follows a reading assignment in the textbook is given for each lecture. Typically, each assignment will be about 10 pages. Please read the assigned material ***before*** coming to the lecture. Then re-read it after the lecture, in conjunction with review of your lecture notes, to fill out missing details in your lecture notes, and to clear up points you are confused about.

The textbook has some good recommendations for succeeding in this course on pp. *xxii* & *xxiii*.

There are a variety of insightful hints for maximizing your learning experience at university on the website of the Academic Skills Center at Dartmouth College. You may browse them at: <http://www.dartmouth.edu/~acskills/success/index.html> .