

ASTR202 — EXPLORATION OF THE SOLAR SYSTEM

Fall Semester 2007

<http://clownfish.rice.edu/~astr202>**SYLLABUS**

- Course Instructor** : Dr. Giovanni Fossati / HBH 324B / x3425
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- Teaching Assistants** : Xuhui Chen [Xuihui.Chen **<at>** rice.edu]
 Naved Mahmud
- Lectures** : Monday/Wednesday/Friday 10:00am-10:50am
 Room 227 Herman Brown Hall
- Office Hours** : *tentatively* one hour after each class, and by e-mail appointment

General Information

This is an introductory course to astronomy for students in academic programs and fulfills Group III distribution requirements. (Students majoring in Astronomy/astrophysics should rather check out ASTR350.) This course covers such fundamentals in astronomy as astronomical distances, coordinates, and timekeeping, as well as basic physical principles required for the understanding of astrophysical phenomena, e.g., energy, gravitation, and the physics of light. In this class we concentrate on the development of human understanding of the universe and survey current understanding of our planetary system.

Pre-requisites

No scientific or mathematical background is assumed, beyond high school algebra and physics. Astronomy is *science*, however, so you will be expected to develop your critical thinking skills in order to understand and apply the scientific method. This course will not use calculus, but homework and test problems will involve equations and calculations.

Required Textbooks/Media

The textbook is going to be: *The Cosmic Perspective*, Fourth edition, 4/E, Media Update
 Bennett, Donahue, Schneider, and Voit
 Addison Wesley / Benjamin Cummings
 2006, 736 pp.
 ISBN: 0805366474

Depending on your interest, and whether you plan to also take ASTR201, you can opt to buy the entire book, covering both this course and the stars and galaxies course (thus providing a rather complete introduction to astronomy), or the reduced (solar-system-only) version: “*The Cosmic Perspective: The Solar System*” (Fourth edition, 4/E, Media Update; ISBN: 0321499700).

Each new copy of the textbook comes with a personal access kit for the *Mastering Astronomy* website and the SkyGazer CD (if you purchased a used copy of the book, you can buy access to the website online at www.masteringastronomy.com). While we are not going to use them directly in the course, we strongly recommend you to take advantage as much as possible of these resources because they provide a very well done set of tutorials and extra problems.

NOTE ON OLDER EDITIONS: these “Fourth Edition, 4/E, Media Update” are practically identical to the 2006 Fourth Edition, 4/E editions, ISBNs 0805392696 and 0805392955, respectively, that you should

be able to find used. There are no changes to the textbook itself, just modest updates to the accompanying media, that we are not really using for the course. Editions older than 4/E are significantly different.

There will be 2 copies one on reserve at the library, (unfortunately) shared with ASTR201. I will let you know when I hear back from the library about their availability because they have been ordered very recently.

Special Needs

Any student with a documented disability needing academic adjustments or accommodations is requested to speak with me during the first two weeks of class. All discussions will be confidential. Students with disabilities should also contact Disability Support Services in the Ley Student Center. Additional information about disability services is available at www.dss.rice.edu.

The classroom, HBH227, has been recently renovated, and its new layout and furniture allow for two wheelchair accessible places.

Course Requirements and Grading

Your final grade will be based on the following work:

- Ten homework assignments. Basic problem sets taken from the book (or at the same level of those collected in it), or related class activities. Homework problems will be due typically 1 week after being assigned. You may **discuss general concepts** with classmates and you are encouraged to do so. However, **the specific homeworks have to be done individually, and the honor code applies**. Collectively, homeworks will count for 40% of your course grade.
Please see also the “Homework Guidelines” posted on the website.
- Three in-class tests. Each exam will consist of multiple-choice questions (some involving short calculations in order to recognize the correct answer). Collectively, these count for 50% of your course grade. They will be closed-book, closed notes, (non-programmable) calculator allowed. For the tests a handwritten one page “cheat sheet” may be allowed (and it will be turned in together with the test). Check with the instructor each time!
- web-research and/or observing project(s), worth 10%. The goal of the projects is to give you the opportunity to learn more about some of the topics discussed in the course, and for us to assess your understanding by the quality of your analyses and discussion, and ability to connect the class material with the project topic.
 - Observing Project: It will consist of performing a few observations of solar system objects, assisted by the instructor and/or other people, mainly using the Rice Campus Observatory.
In-depth information and updates will be posted on the class website. Check regularly
 - Web-research Project: a report and analysis on a recent news article pertaining to some discovery or event in Solar system astronomy. The report may be submitted in the form of an accessible web page, or a PDF (or printed) paper (not MS Word or other word processor formats). Details will be forthcoming in September, but keep an eye and ear tuned to the news to catch any interesting topics before September comes around.
You will need to check with the instructor whether the article you have in mind is suitable. Updates will be posted on the class website. Check regularly
 - Extra credit may be obtained by doing both an observing and a web project: the total maximum “grade” for the combination of observing+web projects is 15 “points”. A deadline for dropping a project will be set, past which a student will be committed to submitting a project. This

is motivated by past unfortunate experiences of students hedging their bets until the project submission deadline (see extended explanation online).

Information about the honor code application to the projects will be posted in their dedicated web pages. Here we only emphasize that **the honor code will apply to the project-related papers and activities**, and to stress in particular that **plagiarism and data-forgery will not be tolerated**. Your work should be clearly distinguishable from your sources, and it is expected to be original, in the sense that it should be the fruit of your own understanding of the issues. Please review Rice’s Honor Council online documents, in particular www.ruf.rice.edu/~honor/bluebook/academicfraud.htm. A related webpage will be posted on the class website.

- Extra-credit opportunities (possible).
 - During the course of the semester, there *may be* a few opportunities to earn extra credit for special problems, speakers, or web-based activities available at the Mastering Astronomy website.
 - Moreover, each homework will be worth more than its nominal 40/10=4% share of the total final grade. So, the “points” available over the 10 homeworks will be approximately 45%. This can help make up for homeworks where you lost points. However, only a maximum of 40 “points” will count toward the grade (i.e. there is going to be a “cap”).
 - Similarly, for each in-class test, extra “points” may be available on any given test but only 50 will count toward the total.

- Grades:

≥90%	A-/A/A+
80% – 90%	B-/B/B+
70% – 80%	C-/C/C+
60% – 70%	D-/D/D+
<60%	F

You can get the grade you “want” without having much of a scientific background yet. You will find, however, that you may have to work hard and regularly to achieve good grades. I recommend to always read the book between each lecture, and make use of the helpful tutorials and other materials available on the textbook website.

Also, **be warned that you will get an F if you end up with less than 60% of the available points**. The earned points will not be rescaled at the end of the course.

I will post online an updated gradesheet as soon as each HW or test is graded. Together with your current earned points, the gradesheet will report a projection of your final grade if you continue on the same track until the end of the class.

Deadlines

Strictly enforced! Requests for extensions must be cleared with the instructor (by email) BEFORE the due date, and you need valid reasons for them to be accepted.

Web Sites

Two websites are extensively used during the semester: clownfish.rice.edu/~astr202/ is the course website which contains the problem assignments and other up-to-date information regarding the course, and www.masteringastronomy.com is the Addison-Wesley website related to the textbook that contains tutorials, study guides, exercises, etc. to help you along in learning and understanding the course material.

It is the student's responsibility to check the class website regularly for updated information.
Additional solar system content websites are provided in the class homepage.

Weekly Schedule

Please refer to the class website.