

ASTRONOMY 101.003 (Call # 14186)

INTRODUCTION TO ASTRONOMY

Fall 2008

Instructor: Prof. Richard Rand

Class Time: Tuesdays and Thursdays 11:00 - 12:15

Location: 103 Regener Hall

Office Hours: Thursday 1 - 2 in my office (see below).
Or just send email

Phone: 7-2073

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Office: Room 166, Physics and Astronomy Bldg.
(corner of Lomas and Yale)

Home page: www.phys.unm.edu/~rjr/rjrhome.html

Text: Astronomy: A Beginner's Guide to the
Universe, by Chaisson and McMillan, 5th ed.

Astronomy is the oldest of the sciences and also one of the most fascinating to people in general. This is a time of great discoveries about the universe which we all hear about in the press on a seemingly regular basis. One of the goals of this course is for you to become informed enough about the cosmos to understand how these discoveries have been made and what they really mean. Astronomy also satisfies people's natural curiosity to find out about this place that we find ourselves in -- the universe. The fruits of astronomical research are not solely the property of professional astronomers, but of everyone, and by the end of this class, you'll be in a good position to partake.

We have a big task in front of us this semester: a tour of the universe. There's no prerequisite for this class, besides an open mind and desire to know what is out there. You will learn some physics and see a small amount of math.

In the lectures, we will occasionally watch a video, and you'll see some of the latest results from the Hubble Space Telescope, various Mars missions, and more. We'll also use iClickers (see below). Please explore the website that accompanies the book. It contains a hyperlinked version of the book, tutorials, animations and videos, and self-graded practice questions useful for studying for the tests (see below).

If you don't understand something, please ask! Chances are, many people around you don't understand it either. Or come to office hours or send an email if you prefer. And come to office hours if you want to chat about any astronomy-related topic, like something you saw on TV or read about, or perhaps you are thinking about becoming a physics or astrophysics major or entering an astronomy-related profession. Also, check out astronomy material on the Web. There is a vast amount of it.

COURSE GROUND RULES

General. There is not time to do justice to every topic in the book, or in astronomy in general, especially in the lectures. However, you are generally responsible for all material in a chapter, whether I lecture on it or not. There are a couple of exceptions to this rule. First, the book has more equations than the lectures will. You are only responsible for equations you see in lecture. Second, you are only responsible for the More Precisely boxes, some of which have a lot of math, to the extent that I lecture on them in class. It will benefit you greatly to read the relevant chapter or sections before I discuss them in class. The lectures are used to reinforce the reading and to explain the more important concepts in some detail.

Webpage. My home page (see URL above) will have electronic versions of all handouts (syllabus, test reviews, etc.) and occasionally other material.

Grading. There will be four tests, each worth one quarter of the grade, all multiple choice. Each will test only on material since the last test (or, for the first test, since the beginning of the course). The tests are graded on a curve. The last test will be held at the scheduled final exam time for this class, which is Tuesday, Dec 16 at 12:30-2:30. Note this test is NOT a final, however. There will be no homework except reading the chapters. Final grades will be an average of your four test scores. Test questions will be based on both the lectures and text. There should be CAPS tutors for this class.

Professors often find that many students don't read the syllabus and thus don't understand the procedures for the class, or the number and dates of the tests, etc., resulting in a negative effect on the students' performance (and we end up answering the same questions over and over again throughout the semester on subjects that are covered in the syllabus). In an attempt to minimize this, the first test will include a few questions on the syllabus! Not nagging details like "which date will we study Jupiter?", but general policy questions like "how is your final grade determined?". So understand the syllabus - it will help your grade. It is YOUR responsibility to understand the procedures in this class.

Regarding grade disputes; if you feel your test grade is in error, please bring it to my attention no later than 2 weeks after receiving your graded test.

Make-up tests. You may make up an test only if you have a valid excuse *AND YOU NOTIFY ME BEFORE THE TEST*. No make-ups will be given unless it is arranged before the test. You

MUST make up the test within ONE WEEK of the original test date. All make-ups will include an oral test. These take place IN MY OFFICE, not in Regener. You cannot be more than 15 MINUTES LATE for a makeup.

Book website. The website accompanying our book has many useful auto-graded practice questions which will help you study for the tests. Each chapter has "Practice Questions", "True or False", "Labeling", and "Multiple Choice" to try. There is also a "Practice Problems" category, but these are too quantitative for this class. I've gone through each chapter and found which questions are appropriate (i.e. not requiring too much calculation) in the above categories, and a list of these can be found in a link from my homepage.

iClickers. To help you review for the tests, and to give you the (only) chance to earn some extra credit, we will use iClickers. Starting in the second week, at the end of each lecture we will do three or four clicker questions that review the previous one or two lectures. You can get the extra credit just by participating: if you try to answer, right or wrong, >85% of the questions throughout the semester, I will boost your final grade one notch: i.e. a C+ becomes a B-.

You need to go to two websites to register some information. This sounds a bit cumbersome but it is to protect your privacy. The first is a department web page, which helps me administer things more efficiently. The second is the iClicker registration page.

First, go to <http://panda.unm.edu/clickers/rand101.phtml> and enter your name, Banner ID, email and clicker serial number. When you hit "Submit", you will be assigned a three-digit "Student ID number" which is just for this class. Keep this important number private - this is the number by which I will post test results on the door of 103 Regener, as we are not allowed to post by Banner ID. If you forget your number, you can use the same webpage to request it by email. Then go to <http://www.iclicker.com/registration> and register your iClicker there. For "Student ID" on that site, enter that three-digit number you just got. Do this even if you've already registered it for another class.

Cell phones, Ipods, blackberries, etc.: keep them turned off and out of sight in class or preferably don't bring them to class at all. If a phone rings, I will stop lecturing and stare in the direction of the ringing until the problem goes away.

SCHEDULE

<u>DATE</u>	<u>TOPIC</u>	<u>READING</u>
Aug 26	Introduction	
28	The Sky, Foundations of Astronomy	Introduction
Sep 2	The Sky, Foundations of Astronomy cont.	Introduction
4	From Aristotle to Newton	Chap. 1
9	Radiation and the Electromagnetic Spectrum	Chap. 2
11	Atoms and Spectroscopy	Chap. 2
16	Telescopes	Chap. 3
18	Test #1	
23	Intro. to the Solar System Solar System Formation	Chap. 4.1, 4.3
25	The Earth	Chap. 5, skip 5.7
30	The Moon, Venus	Chap. 5, 6
Oct 2	Mars	Chap. 6
7	The Jovian Planets	Chap 7, skip magnetospheres
9	Moons, Rings, Pluto and Solar System Debris	Chap. 8, 4.2
14	Test #2	
16	Fall Break	
21	The Sun	Chap. 9
23	Measuring the Stars	Chap. 10
28	Material Between the Stars: The Interstellar Medium Star Formation	Chap. 11
30	Stellar Evolution	Chap. 12

Nov 4	Stellar Death: Stellar Explosions Neutron Stars	Chap. 12 Chap. 13.1-13.4
6	Black Holes	Chap. 13.5-13.8
11	Black Holes video	
13	Test #3	
18	The Milky Way Galaxy	Chap. 14
20	Galaxies	Chap. 15
25	Galaxies (cont.)	Chap. 16
27	Thanksgiving	
Dec 2	Cosmology: The Big Bang and the Evolution of the Universe	Chap. 17
4	Cosmology (cont.)	Chap. 17
9	Video - The Accelerating Universe	
11	Video - The Hunt for Alien Worlds	Chap. 18
16	Test #4, 12:30pm, 103 Regener	