

Astronomy 111 [Section 14606] (Introduction to Astronomy I)

Instructor: Dr. Edward (Ed) Rosenthal

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Office Hours: Please refer to my schedule

Class Meetings: Saturday 8:00-10:45am (PS-176)

Text: *Astronomy Today: The Solar System (Vol. 1) (6th edition) (2008)* by Eric Chaisson and Steve McMillan

Prerequisites: No previous science training required; the math in this course will be limited to arithmetic and elementary algebra & geometry (MAT092 or equivalent).

Equipment: The TI-30Xa (or equivalent) is recommended (about \$10); a graphing calculator may be helpful but is not required.

Course Description: This course will provide you with an introduction to astronomy and scientific procedures even if you are not a science major. We will discuss the scientific method, history of astronomy, properties of light, and the solar system and planets.

Grading: Final course letter grades will be assigned according to the following scale:

A = 90-100%; B = 80-89%; C = 70-79%; D = 60-69%; F = below 60%.

You will be given a running estimate of your grade periodically throughout the semester.

Exams: There will be homework, weekly quizzes, a midterm exam, and a ***comprehensive*** final exam. The exams will primarily consist of material covered in lecture and the associated reading plus material from the homework. The homework and review questions at the end of each chapter in the textbook are good sources for practice (the length of the homework assignments will vary depending on the amount of work required for each question).

- Midterm Exam = 100 pts
- Final Exam (Comprehensive) = 100
- Weekly Quizzes (the lowest two (2) of your quiz scores will be dropped) = 150
- Homework = 150

<i>Total</i>	500 pts
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Homework: You are responsible for reading the entire assigned chapters in the textbook. Homework will be assigned through *Mastering Astronomy (Mastering Astronomy Student Access Kit; Prichard, Benjamin Cummings (2006) (ISBN: 9780805383089))*.

Homework assignments will be assigned each week and will be done through the *Mastering Astronomy* Web site. You will have 1 week to complete each homework

assignment. If you do not have a computer with internet access at home, the computers in the High Tech centers may be used. To log onto the website, you will need to create your own account. Please follow the instructions found later in this syllabus.

Homework Late Policy: Homework is due by midnight on the due date whether you are in class or not. Late homework will decrease the points awarded by 2% per hour for 50 hours after the due date. After that, no late homework will be accepted, although you can complete the homework for practice.

The homework is designed to provide you with practice problem solving and to test your knowledge of the material. I plan to work example problems in class. Richard Feynman, Nobel laureate in physics, once said: “*You do not know anything until you have practiced.*”

Quizzes and Exams: *Expect a quiz typically once each week usually at the beginning of class.* The homework is designed to prepare you for the quizzes and exams. Questions on the homework will be indicative of the level at which I expect you to perform on the quizzes and exams. Practice exam material will be distributed prior to the actual exams. **There are no make-up quizzes or exams.**

Additional Note on Exams and Quizzes: For the exams, you will need a #2-pencil and a calculator. **Only non-graphing calculators that are not capable of storing text or programs in memory will be allowed on the quizzes and exams.** You will not need a #2-pencil for the quizzes. *If you need to get any of the above items from me for an exam, the cost is 5% of your grade for that exam per item.* **Cell phones and music headsets are to be turned off and are not allowed on your desk during quizzes/exams – if your cell phone goes off during testing, you will turn in your test at that time and be asked to leave the room for the remainder of that class.** Please do not exchange a calculator with another student during a test without my permission. *Remember, cheating during tests will not be tolerated and is grounds for expulsion from this course and possibly GCC as well.*

Laboratory: It is recommended that you enroll concurrently in AST113 (1.0 credit), the laboratory associated with AST111 (3.0 credits). These are **two separate classes**, and you will receive **separate grades for both**. Together these courses may (partially) satisfy your natural science requirement for University transfer (*e.g.*, to ASU). The AST113 lab exercises are designed to reinforce the AST111 curriculum as well as to clarify the scientific method.

General Note: Class notes are the most important source for study – however, I would highly recommend that you look at and think about every review question and assigned problem at the end of each chapter as this is one of the best ways to test your skills. **If you do not understand something or are not certain if you understand, get help!** I cannot stress this point enough. Science and math classes build on earlier material, and you can get behind quickly if you get lost. Unless stated otherwise, **it is expected that you attend every lecture and lab session. Attendance will be taken.**

As a college student, you need to discipline yourself as to your study habits and classroom behavior. Get to class at least a couple of minutes early. You are expected to be on time for class and remain seated for the entire class. If you must leave early, it is considered only common courtesy to leave quietly and to have informed your instructor beforehand. Any beepers or cell phones should be turned off during class.

Plan to attend all classes and to stay the entire class period. There is a high correlation between regular class attendance, punctuality, and good grades. If you are absent for any reason, you are still responsible for any homework and lecture material covered in class. You may need to get notes from another student for classes missed. **Ask questions and participate – don't wait for someone else to ask questions.** Be prepared as if you expect a quiz everyday.

Workload: As a general rule, expect to spend roughly 2-3 hours/week outside of class on this course *for every 1 hour of in-class time*, assuming your math skills are good. This translates to roughly 5 to 8 hours per week outside of class for the average student. Take these demands seriously as you plan your academic schedule.

Extra Credit: *Extra credit assignments* will be discussed more in class during the first couple of weeks of the course. *Total extra credit for the course can boost you by at most one letter grade.* Here are some options:

- o Completion of the lecture-tutorials (about +50 pts total) started in each class from: Lecture-tutorials for Introductory Astronomy, 2d ed., Prather, Slater, Adams, Brissenden, 2008 (ISBN: 0312392267)
- o Stargazing Event: (one time +25 pts) attend an event held by a suitable astronomy club (for example, Tony and Carole LaConte www.stargazingforeveryone.com; local clubs such as Desert Foothills Astronomy Club, East Valley Astronomy Club, Phoenix Astronomical Society, Saguaro Astronomy Club, West Valley Astronomy Club). Visiting Kitt Peak National Observatory in Tucson or Lowell Observatory in Flagstaff are viable options as well. A one-page report on where you went, what you saw, and what you learned and some proof that you attended will be due by **Sat., Dec. 5, 2009**. *Late Policy: You will have all semester to do this -- Absolutely no late papers will be accepted!*

Tutoring: If you are having trouble with any concepts or math in the class, you are encouraged to use Tutoring Services (Center for Learning, Math Solution, and the Writing Center). Drop-in and individual tutoring are available. There are also Astronomy and Physical Science Assist services available (please see handout). **You should always feel free to contact me whenever you are having difficulty, and make use of Tutoring Services.**

Syllabus Acknowledgement Sheet:

You are responsible for understanding the material presented in this syllabus. You will be notified of any changes in the course requirements or policies. In order to remain in the class, you must sign and date the syllabus acknowledgement sheet by **Aug. 29, 2009**.

By the end of this course you should be able to:

1. Apply the scientific method and other critical thinking models to astronomical phenomena for hypotheses development, experimental design, data acquisition and data analysis.
2. Explain the application of fundamental physical principles to various astronomical phenomena.
3. Outline the history of astronomical thought.
4. Describe in terms of energy, wavelength, and frequency the various portions of the electromagnetic spectrum.
5. Describe instruments used to detect radiation from the various portions of the electromagnetic spectrum.
6. Compare the physical properties of the Earth with its moon.
7. Give an overview of the components of the solar system.
8. Compare and contrast the physical properties of the major planets.
9. Describe the minor components of the solar system.
10. Explain possible models of solar system formation.
11. Compare solar system dimensions with nearby stars dimensions.

Withdrawals: **Friday, October 2** and **Monday, November 30** are the Fall 2009 withdrawal deadlines (*without* and *with* my signature, respectively). **You are responsible** for observing these deadlines if necessary. **Do not assume** that I will automatically drop you (with a grade of W) if you just stop showing up for class. If **you** do not complete the withdrawal paperwork, then I have the option of assigning you a grade of Y or F, as appropriate (note that both these grades factor into your GPA as 0.00). You may also receive a grade of Y if you are failing the class at the time of withdrawal. **Before withdrawing from the course, I encourage you to discuss other options with me.** *General Note:* if you plan on doing well in this course, plan on attending class on a regular basis.

Reinstatement: A student who has been withdrawn may be reinstated only after all work in the course has been successfully brought up to date. Any absences after reinstatement may result in withdrawal.

ADA Statement: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact GCC Disability Services and Resources (DSR) (623) 845-3080 (-3086 TTY) and at <http://www.gccaz.edu/FutureStudents/StudentSupport/Disabilities.htm>

All students are expected to know and comply with all current published policies, rules, and regulations as printed in the GCC 2009-2010 College Catalog, Class Schedule, and Student Handbook & Planner.

>> ALL PROVISIONS IN THIS SYLLABUS ARE SUBJECT TO REVISION BY THE INSTRUCTOR. SUCH REVISIONS, IF ANY, WILL BE ANNOUNCED IN CLASS. <<

TENTATIVE SCHEDULE: Each date represents our **Saturday** class for that week. The campus is closed on the following school holidays: Labor Day (Monday, September 7; n/a), Veteran’s Day (Wednesday, November 11; n/a), and Thanksgiving break (Thursday, November 26 thru Sunday, November 29; *no* class that week). We most likely will not have time to cover Chapters 13 (Uranus and Neptune) and 16 (The Sun).

Week of:	Chapter:	Lecture Topic:	Laboratory:
August 22	1	Charting the Heavens	see lab schedule
29	2	The Copernican Revolution	
September 5	3	Radiation	
12	4	Spectroscopy	
19	5	Telescopes	
26	6	The Solar System: Comparative Planetology	
October 3	7	Earth	
10	8	The Moon and Mercury	
*** Midterm Exam ***			
17	9	Venus	
24	10	Mars	
31	11	Jupiter	
November 7	12	Saturn	
14	14	Solar System Debris: Keys to Our Origin	
21	15	The Formation of Planetary Systems	
28	[16]	Thanksgiving Break No Class	

Dear Student:

In this course you will be using MasteringAstronomy™, an online tutorial and homework program that accompanies your textbook.

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code** (Comes in the Student Access Kit that may have been packaged with your new textbook or is available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringastronomy.com.)
- ✓ **The ZIP code for your school: 85302**

- ✓ **A Course ID: MAROSENTHAL15218**

Register

- Go to www.masteringastronomy.com and click **New Students** under Register.
- To register using the Student Access Code inside the MasteringAstronomy Student Access Kit, select **Yes, I have an access code**. Click **Continue**.

–OR– **Purchase access online:** Select **No, I need to purchase access online now**.

Select your textbook and whether you want to include access to the eBook (if available), and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process may differ slightly from the steps printed here.

- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under “Do you have a Pearson Education account?” and supply the requested information. Upon completion, the **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Log In Now** or return to www.masteringastronomy.com later.

Log In

- Go to www.masteringastronomy.com.
- Enter your Login Name and Password and click **Log In**.

Enroll in Your Instructor's Course and/or Access the Self-Study Area

Upon first login, you'll be prompted to do one or more of the following:

- Enter your instructor's MasteringAstronomy Course ID.
- Select your text, if available, and **Go to Study Area** for access to self-study material.
- Enter a Student ID. Your instructor *may* request that you enter a special Student ID for this course. If so, be sure to enter this information EXACTLY as instructed.

Click **Save** and **OK**.

Congratulations! You have completed registration and have enrolled in your instructor's MasteringAstronomy course. To access your course from now on, simply go to www.masteringastronomy.com, enter your Login Name and Password, and click **Log In**. If your instructor has created assignments, you can access them by clicking on the **Assignments** button. Otherwise, click on **Study Area** to access self-study material.

Support

Access Customer Support at www.masteringastronomy.com/support, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Additional contact information for Customer Support, including Live Chat