Astronomy 121 – Course Information

(http://www.uoregon.edu/~haydock/Astr121Info.htm)

The Solar System CRN 16512 September 27, 2010

This first term of introductory astronomy covers the early history of astronomy, the origin of the solar system, and what is known about the Sun, Earth, Moon, and other planets. This course requires minimal mathematics – some arithmetic and a little algebra.

Classes: Mondays, Wednesdays, and Fridays 09:00 to 09:50 in Room 207 Chapman Hall.

Instructor: Roger Haydock (haydock@uoregon.edu), 172 Willamette Hall, 346-5221. Office hours – Tuesdays 08:00 to 09:00, Thursdays 08:00 to 09:00, or by appointment.


Alternative: Instead of buying the text, students may choose to attend all classes and take thorough notes. Review and Discussion questions and Problems will be posted at the above website. Approval from the instructor is required for this option.

Homework: Prepare for each class by reading the assigned material in the text and answering the appropriate questions from the self-tests. After class reread the material and write out the answers to the questions on that material in Review and Discussion. Try a few of the relevant Problems. Be sure to use complete sentences as well as diagrams and formulas in answering the questions and problems. You should be spending about 6 hours per week, outside of class, studying the text, answering questions, and solving problems. This homework will not be collected, but the examinations will consist of questions from the homework.

Midterms: Friday, October 15, and Friday, November 5, there will be midterms in class. Each midterm will consist of ten questions similar to Review and Discussion questions or the simpler Problems from the homework. The purpose of the midterms is to tell you how you are progressing with the course. Only your midterms which are better than your final examination will be averaged into your final grade.

Final Exam: Friday, 10 December, at 10:15 in Room 207 Chapman Hall is required for a pass or a grade. This examination will consist of twenty questions similar to Review and Discussion questions or the simpler Problems from the homework. Note Final is on Friday of Exam Week!

Project: Because this is a four credit course meeting three hours per week, each student is required to plan, conduct and report on a quantitative determination of some astronomical quantity relevant to the course. Examples of the kind of observations appropriate for this project are measurement of positions at various times for the sun, moon, satellites, or planets. Other kinds of observations are possible, but should be discussed in advance with the Instructor. Examples of quantities to be determined in these projects are rotational tilt, orbital periods, or inclination of the Earth, Moon, other planets, satellites, and so forth. Again, other ideas are encouraged but should be discussed in advance with the Instructor. Data obtained other than by direct observation, for example data downloaded from the internet, is not acceptable. The grade for each project will be based on a written report, due at the final exam, of not more than 1,000 words, but which may contain sketches, graphs, photographs, equations, and so forth. Reports should be written so as to be understandable to other members of the class and should include an introduction to the principle being tested, a description of how the observations were made, the data obtained, and a discussion of whether or not the results agree with accepted values of the quantity being determined. The total effort on the project should be about 3 hours per week, or a total of 30 hours for the course.

Grading: The Final grade is 75% Exams + 25% Project. The exam grade is the average (weighting individual questions equally) of the Final Exam and any Midterms which were better than the Final. The principle for grading exams is that demonstration of understanding of 2/3 or more of the material is at least an A-, ½ or more at least a B-, and 1/3 or more at least a C-. The project is graded on the principle...
that a coherent report reflecting 30 hours of effort earns a B (A if the project is outstanding in some respect).

**Reading:** If you have time, visit the Science Library and read about what is new in science and astronomy. Some interesting magazines are *The New Scientist, Science, Science News, The Scientific American, Astronomy,* and *Sky and Telescope.* The BBC and Yahoo also have great science news websites.

**Course Plan**

September

27 Introduction to the Solar System Chapter 1

29 Basic Astronomy

October

1 Ancient Astronomy Chapter 2

4 Modern Astronomy

6 Origin of the Solar System Chapter 15

8 Formation of the Planets

11 Planetology Chapter 6

13 Exploration of the Solar System

15 **First Midterm** covering Chapters 1, 2, 15 and 6

18 The Outer Earth Chapter 7

20 The Inner Earth

22 The Moon Chapter 8

25 Mercury

27 The Planet Venus Chapter 9

29 The Atmosphere and Surface of Venus

November

1 The Planet Mars Chapter 10

3 The Atmosphere and Surface of Mars

5 **Second Midterm** covering Chapters 7, 8, 9, and 10
8 Jupiter Chapter 11
10 The Moons of Jupiter
12 Saturn Chapter 12
15 The Rings and Moons of Saturn
17 Uranus Chapter 13
19 Neptune and Pluto
22 Asteroids Chapter 14
24 Comets
26 Thanksgiving Holiday – no class
29 Review I

December
1 Review II
3 Review III

10 Final Exam at 10:15 in Room 207 Chapman Hall covering Chapters 1, 2, 6-15.