Astronomy 121 – Course Information

The Solar System  CRN 21004  January 5, 2009

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.

In case of BAD WEATHER check the message on 346-5221 for class cancellation.

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

Assistants: Tom Baldwin (baldwin@uoregon.edu), 217 Willamette Hall (346-4793), Office hours – 13:00 to 14:00 Thursdays; and Anna Smith (annas@uoregon.edu), 220 Willamette (346-4792), Office hours – 13:00-14:00 Tuesdays.


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: Monday, January 26, and Monday, February 16, 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, March 20, at 10:15 in Room 207 Chapman 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.

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, will be marked down severely.

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.

Course Plan

January

5  Introduction to the Solar System  Chapter 1
7  Basic Astronomy  Chapter 2
9  Ancient Astronomy  Chapter 15
12  Modern Astronomy  Chapter 6
14  Origin of the Solar System
16  Formation of the Planets
19  Martin Luther King Day, Jr. – no class
21  Exploration of the Solar System
23  Planetology
26  First Midterm covering Chapters 1, 2, 15 and 6
28  The Outer Earth  Chapter 7
30  The Inner Earth

February

2  The Moon  Chapter 8
4  Mercury
6  The Planet Venus  Chapter 9
9  The Atmosphere and Surface of Venus
11  The Planet Mars  Chapter 10
13  The Atmosphere and Surface of Mars
16  Second Midterm covering Chapters 7, 8, 9, and 10
18  Jupiter  Chapter 11
20  The Moons of Jupiter
23  Saturn  Chapter 12
25  The Rings and Moons of Saturn
27  Uranus  Chapter 13

March

2  Neptune and Plutinos
4  Asteroids  Chapter 14
6  Comets
9  Review I
11  Review II
13  Review III
20  Final Exam at 10:15 in Room 207 Chapman covering Chapters 1, 2, 6-15.