Robert L. Zimmerman
Astronomy, ASTR 121
The Origin and Evolution of the Solar System
Fall 2003, Room Columbia 150, M W F, 14:00--14:50

Prof Robert L. Zimmerman, Office Wil 448,   bob@zim.uoregon.edu
Office Hours: 10:30-11:30 AM--Monday, Wednesday, & Friday or whenever you make an appointment
Web page for the class http://darkwing.uoregon.edu/~phys600
Graders:
Andrew Cook,   acook1@darkwing.uoregon.edu
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Xiaokun Shu,   xshu@darkwing.uoregon.edu
Office hours to be posted on the class outline:
   http://darkwing.uoregon.edu/~phys600/outline121.html
Text: Astronomy Today by Eric Chaisson & Steve McMillan
Web page for the Text http://www.prenhall.com/chaisson

Approximate Outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assig</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/29</td>
<td>Overview</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>10/6</td>
<td>Motions of the Sky</td>
<td>1, 2</td>
<td>Assig #1</td>
<td>(handed out)</td>
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<tr>
<td>10/13</td>
<td>Beginnings of Astronomy</td>
<td>2</td>
<td>Assig #2</td>
<td></td>
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<tr>
<td>10/20</td>
<td>Birth of Our World</td>
<td>15</td>
<td></td>
<td>Test #1 (Monday 10/20)</td>
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<tr>
<td>10/27</td>
<td>Comparative Planetlogy</td>
<td>6</td>
<td>Assig #3</td>
<td></td>
</tr>
<tr>
<td>11/3</td>
<td>Earth</td>
<td>7</td>
<td>Assig #4</td>
<td></td>
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<tr>
<td>11/10</td>
<td>Moon &amp; Mercury</td>
<td>8</td>
<td></td>
<td>Test #2 (Monday 11/10)</td>
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<tr>
<td>11/17</td>
<td>Venus &amp; Mars</td>
<td>9, 10</td>
<td>Assig #5</td>
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<tr>
<td>11/24</td>
<td>Jupiter &amp; Saturn</td>
<td>11,12</td>
<td>Assig #6</td>
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<tr>
<td>(Thanksgiving 11/29)</td>
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<tr>
<td>12/1</td>
<td>Uranus, Neptune &amp; Pluto (if there is time)</td>
<td>13</td>
<td></td>
<td>Test #3 (Monday 12/1)</td>
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<tr>
<td>12/9</td>
<td>Final Exam</td>
<td></td>
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<td>Thursday 15:15 in Col 150</td>
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Midterm Exams: There will be three weekly exams and one final. Each weekly exam is worth 50 points and covers only the material to the previous exam. The test questions come from the lectures and book. There will not be any makeup exams because your grade is based on your two best scores.

Final: The final is worth 100 and covers the complete term. The questions on the final are comprehensive but are closely related to the questions covered in the weekly tests. You must take the final!
**Web Assignments:** There will be a "Web Assignment" about once each week. The Web assignments are designed to expand your exposure to astronomy and to the latest findings. There is two parts to the assignment. In part one you are asked to explain some basic concepts and in part two you are asked to return various images with brief explanations of the images. All images must be placed in a word processor and under the pictures you must include a brief description of the image and the URL where you located the image. You only get full credit if the assignment is handed in on time and it is complete. You must do your own work and you must personally hand in your own paper. You cannot xerox another person’s report and replace their name with yours even if you do the assignment together! A deduction of points will occur if it is not turned in on time or it is xeroxed from another paper. The web assignment is worth approximately 6 or so points.

**Returned Work:** All work is returned in the basement of Willamette Hall. At the bottom of the stairs there are shelves. Your grades are posted on the bulletin board nearby.

**Attendance:** Attendance is REQUIRED. To encourage attendance short questions worth about four points may be asked.

**Extra Credit:** You may write a report. The report will consist of no less than 4 double spaced pages (not including pictures) on any topic covered during the term (The Solar System). The material may come from the Web. Add pictures from the Web to your paper. You must cite the web URLs used in your report and images. The report is due the last class lecture of dead week. The extra credit does not give you any additional points but if you are on the borderline it may increase your final grade. The extra credit may increase your grade by changing an F+ to a D-, a D+ to a C-, B+ to A and etc. The extra credit is strongly advised.

**Grades:** Your class score will be determined by throwing away your lowest weekly test and then adding all of your points (All Web Assignments +two weekly tests +Attendance Questions+ Final). Your grade will be based on the class curve of the total points.
Astronomy 121 – Course Information

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

The Solar System CRN 10675 2003 September 29

This first term of the astronomy sequence 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 15:00 to 15:50 in Room 177 Lawrence.

Instructor: Roger Haydock (haydock@darkwing), 172 Willamette Hall, 346-5221. Office hours – Tuesdays (starting Oct. 14) and Thursdays 08:30 to 09:30 or by appointment. I check my email frequently.

Assistants: Matt Fairbanks (mfairban@darkwing), office hours - Tuesdays and Thursdays 10:30 to 11:30 and Libby Schoene (eschoene@darkwing), office hours - Tuesdays and Thursdays 09:30-10:30. Offices and phones to be announces.


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.

Midterms: Friday, October 17, and Friday, November 7, there will be midterms in class. Each midterm will consist of ten questions similar to Review and Discussion questions or the simpler Problems. 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: Monday, 8 December, at 15:15 in Room 177 Lawrence 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*.

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 test of an astronomical principle covered by the course. Examples of the kind of observations appropriate for this project, are measurement of positions at various times for the sun, moon, satellites, planets, or stars. Other kinds of observations are possible, but should be discussed in advance with the Instructor. Examples of principles appropriate for testing in these projects are rotational or orbital periods of the Earth, Moon, other planets, satellites, and so forth. Again, other ideas are encouraged but should be discussed in advance with the Instructor.

The grade for each project will be based on a written report, **due before 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 support the principle under investigation.

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 are better than the Final. The principle for grading exams is that demonstration of understanding of 2/3 or more of the material is an A, ½ or more a B, and 1/3 or more 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).


Course Plan:

**September**

29 Introduction to the Solar System Chapter 1

**October**

1 Basic Astronomy
3 Ancient Astronomy Chapter 2
6 Modern Astronomy
8 Origin of the Solar System Chapter 15
10 Formation of the Planets
13 Planetology Chapter 6
15 Exploration of the Solar System
17 First Midterm covering Chapters 1, 2, 15 and 6
20 The Outer Earth Chapter 7
22 The Inner Earth
24 The Moon Chapter 8
27 Mercury
29 The Planet Venus Chapter 9
31 The Atmosphere and Surface of Venus
3 The Planet Mars Chapter 10
5 The Atmosphere and Surface of Mars
7 Second Midterm covering Chapters 7, 8, 9, and 10
10 Jupiter Chapter 11
12 The Moons of Jupiter
14 Saturn Chapter 12
17 The Rings and Moons of Saturn
19 Uranus Chapter 13
21 Neptune and Pluto
24 Asteroids Chapter 14
26 Comets
28 no class
December

1 Review II

3 Review II

5 Review III

8 Final Exam at 15:15 in Room 177 Lawrence covering Chapters 1, 2, 6-15.