Robert L. Zimmerman  
Astronomy, ASTR 121  
The Origin and Evolution of the Solar System  
Fall 2005, Room LL 282, M,W,F 9-9:50  
Prof Robert L. Zimmerman, Office Will 448,  
Office Hours: 10:30-11:30 AM--Monday, Wednesday, & Friday or by appointment.  
Web page for the class http://darkwing.uoregon.edu/~phys600  
Graders:  
Anthony Clark  Office Hr: To be announced aclark@uoregon.edu  
Timothy M Sweeney  Office Hr: To be announced tsweeney@uoregon.edu  
Elizabeth S Ptacek  Office Hr: To be announced eptacek@uoregon.edu  
Text: Astronomy Today by Eric Chaisson & Steve McMillan  
5th Edition  
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>9/26</td>
<td>Charting the Heavens</td>
<td>1</td>
<td>Assig</td>
<td></td>
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<tr>
<td>10/3</td>
<td>Copernican Revolution</td>
<td>2</td>
<td>#1</td>
<td></td>
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<tr>
<td>10/10</td>
<td>The Solar System</td>
<td>6</td>
<td>#2</td>
<td>(10/14 Test #1)</td>
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<tr>
<td>10/17</td>
<td>Earth</td>
<td>7</td>
<td>#3</td>
<td></td>
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<tr>
<td>10/24</td>
<td>Moon &amp; Mercury</td>
<td>8</td>
<td>#4</td>
<td></td>
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<tr>
<td>10/31</td>
<td>Venus &amp; Mars</td>
<td>9,10</td>
<td>#5</td>
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<tr>
<td>11/7</td>
<td>Assig #6</td>
<td></td>
<td>(11/7 Test #2)</td>
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<tr>
<td>11/14</td>
<td>Jupiter &amp; Saturn</td>
<td>11,12</td>
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<td>11/21</td>
<td>Uranus, Neptune &amp; Pluto</td>
<td>13</td>
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<td>Thanksgiving is 11/24 to 26</td>
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<tr>
<td>11/28</td>
<td>Uranus, Neptune &amp; Pluto</td>
<td>13</td>
<td></td>
<td>(11/28 Test #3)</td>
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</tbody>
</table>

This test is an **optional exam** so you do not have to take it; however, if you want to try and improve one of your previous test scores you can choose to take it or if you missed either Test1 or 2 then this is your **makeup exam**.  
12/5    | Final Exam Tuesday 10:15 (12/6) |  

Midterm Exams: There will be three weekly exams and one final. Each weekly exam is worth 40 points and covers only the material to the previous exam. The third test is an **optional exam** so you do not have to take it; however, if you want to try and improve one of your previous test scores you can choose to take it or if you missed either test1 or test 2 then this is your **makeup 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 are 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. The descriptions must**
be in your own words and NOT copied and pasted. 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. Each web assignment is worth 6 points.

Returned Work: All your work is returned in the basement of Willamette Hall. At the bottom of the stairs there are shelves and you will find your assignments and tests. 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. You can tell how well you are doing by comparing your test scores with the class average, which is a C or C+.
Astronomy 121 – Course Information

The Solar System CRN 16540 September 26, 2005

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 15:00 to 15:50 in Room 123 Pacific.

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

Assistants: Chris Harland, office hours – Tuesdays and Thursdays 13:00 to 14:00, Room 218, Willamette Hall, 346-4760; Hayden McGuinness, office hours – Tuesdays and Thursdays 12:00 to 13:00, Room 217, Willamette Hall, 346-4793; and Scott Ernst, office hours – Mondays and Wednesdays 12:00 to 13:00, Room 218, Willamette Hall, 346-4760.


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.

Midterms: Friday, October 14, and Friday, November 4, 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: Wednesday, 7 December, at 15:15 in Room 123 Pacific 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, or planets. 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. 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 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 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).


Course Plan

September

26 Introduction to the Solar System Chapter 1

28 Basic Astronomy

30 Current Astronomy Chapter 2

October

3 Modern Astronomy
5 Origin of the Solar System Chapter 15

7 Formation of the Planets

10 Planetology Chapter 6

12 Exploration of the Solar System

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

17 The Outer Earth Chapter 7

19 The Inner Earth

21 The Moon Chapter 8

24 Mercury

26 The Planet Venus Chapter 9

28 The Atmosphere and Surface of Venus

31 The Planet Mars Chapter 10

November

2 The Atmosphere and Surface of Mars

4 Second Midterm covering Chapters 7, 8, 9, and 10

7 Jupiter Chapter 11

9 The Moons of Jupiter

11 Saturn Chapter 12

14 The Rings and Moons of Saturn

16 Uranus Chapter 13

18 Neptune and Pluto

21 Asteroids Chapter 14

23 Comets

25 Thanksgiving Holiday – no class

28 Review I

30 Review II

December

2 Review III

7 Final Exam at 15:15 in Room 123 Pacific covering Chapters 1, 2, 6-15.