Goal: to survey concepts in modern planetary astronomy. For each topic, you will be expected to give an accurate mathematical and physical description of appearance, and evolution.

Instructor: Dr. Michael Allen
Office: Webster 1246  Credits:  3
Lab: Webster 249  Level: Tier II
Phone: 509-335-1279  Prereq’s: Phys 202 (rec: Phys 303, Math 171, CompS 121)
E-mail: mlfa@wsu.edu  Web Page: http://astro.wsu.edu/allen/courses/astr345/
Office Hours: TBA

Texts:
1. *Moons and Planets, 5th edition*, by Hartmann (required; the course organization, physical descriptions, and many assignment questions are taken from this book; the book is excellent but expensive)
2. *An Introduction to Modern Astrophysics, 2nd edition*, by Carroll & Ostlie (optional; recommended for intended majors in astrophysics, the derivations and mathematical questions are taken from this book)
3. *Computational Physics, 2nd edition*, by Giordano & Nakanishi (we use §4 only, orbit theory)
4. Other items are available on reserve at the Owen Library

Meeting Places:
Regular Lectures MWF 3:10-4pm OR 4:10-5pm, in Webster B12
Planetarium Sloan Hall 231
Observatory on Olympia Ave, near the racetrack and greenhouses, south-east end of campus

Holidays:
Labor Day Mon Sep 1, 2008  A full academic calendar is available from the Registrar:
Veteran’s Day Tue Nov 11, 2008  http://www.registrar.wsu.edu
Thanksgiving Break Nov 24-28, 2008

Course webpages: The web pages have useful information for the student, including sections for announcements, the grading of the lab reports, example quiz questions, highlights of the in-class notes, and some diagrams.

Assignments: may be a combination of numerical and analytic problems, written exercises, small research projects, graphical constructions, and simple numerical analyses; often a computer program or spreadsheet will be required. Assignments submitted after the solutions have been posted will receive zero credit. As preparation for other upper-division courses, a large number of problems will be assigned as homework, but only a subset of these will be graded.

Classroom 1. The course is conducted mostly by lecture format, of either descriptive content or mathematical derivation.
Etiquette: 2. The final exam will consist of from 6 to 8 problems. For every cell phone and pager that rings during lecture time, an extra mandatory problem will be added to the final exam. You are advised to leave your cell phones at home.
3. Please show courtesy to your fellow classmates and do not chat unnecessarily during the lecture. Being disruptive is ground for expulsion from the course.

Evaluation: Assignments: 30%
Test #1: 10%  Wed Sep 17 (week 4), in class
Test #2: 10%  Wed Oct 22 (week 8), in class
Paper: 20%  Fri Nov 21 (week 13), in class
Final Exam (cumulative): 30%  Mon Dec 15, 3:10-5:10pm OR 8-10am

To receive credit in this course, you must sit for the final exam. Your grade is based entirely upon your ability to communicate in writing an understanding of the course material. Your test and exam grades will be reported as percentages, then adjusted to the 4-point scale. Your final grade will be the average of these, as per their percentage weights given above. You are allowed to bring a crib sheet to tests and the exam. The crib sheet must be a single-sided sheet of 8.5×11in paper with no attachments.
The following table shows approximately how percentages translate to grade points. These numbers may change in a way dependant upon the performance of the class, but never in such a way as to lower your grade.

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**Extra credit:** Extra credit will be granted for participation in evening planetarium shows (dates announced in class) and outdoor observing at the Jewett Observatory (http://astro.wsu.edu/observatory.html) or elsewhere, hosted by the Palouse Astronomical Society (http://www.palouseastro.wsu.edu).

Observing dates:
- Sat Sep 6: 8:30pm
- Sun Oct 5: 8pm
- Sat Nov 8: 7:30pm

**List of topics**

<table>
<thead>
<tr>
<th>Basic observations</th>
<th>§1/2 Hartmann</th>
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<tr>
<td>Celestial coordinate systems</td>
<td>§1 Carroll &amp; Ostlie</td>
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<td>Orbit theory</td>
<td>§3 Hartmann, §2/19 Carroll &amp; Ostlie</td>
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<td>Formation of planetary systems</td>
<td>§4/5 Hartmann, §10/12/23 Carroll &amp; Ostlie</td>
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<td>Minor bodies</td>
<td>§6/7 Hartmann, §22 Carroll &amp; Ostlie</td>
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<td>Planetary interiors</td>
<td>§8 Hartmann, §10/20/21 Carroll &amp; Ostlie</td>
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<td>Planetary surfaces</td>
<td>§9/10 Hartmann, §20 Carroll &amp; Ostlie</td>
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<td>Planetary atmospheres</td>
<td>§11 Hartmann, §19/21 Carroll &amp; Ostlie</td>
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<td>Exoplanetary systems</td>
<td>§23 Carroll &amp; Ostlie</td>
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**Academic integrity:** “Academic dishonesty” is anytime you represent someone else’s work as your own. All forms of cheating, plagiarism, and fabrication, are prohibited as stated in the WSU Handbook (WAC 504-25-015). It is common practice in the Department of Physics & Astronomy that students who violate the Washington Academic Code (WAC) are failed in the course, and a formal report is sent to the Office of Student Affairs. Reference: http://www.conduct.wsu.edu/.

You can share ideas and concepts with other students. The work you submit must be wholly your own.

**Students with disabilities:** Reasonable accommodations are available for students who have a documented disability. Please visit the Disability Resource Center (DRC) during the first two weeks of every semester to seek information or to qualify for accommodations. All accommodations must be approved through the DRC, located in Administration Annex 205, 509-335-3417 in Pullman, or http://www.drc.wsu.edu.

**WAC policies on final exams:** (1) No final exams will be given at a different time than posted, except (2) an exam date may be changed if a student has 3 or more exams on a single day. (3) No exams shall be given during Dead Week, except make-up exams.

**Strategies for success:** Look up any word you do not understand in a good dictionary. Re-write your notes in your own words. Form a weekly study group that can meet for 30-60 minutes. Get an early start on assignments. Make good use of instructor office hours by arriving with a written list of questions. Mental and physical health go hand in hand: eat right, stay active, stop watching TV.