

ASTRONOMY 3  
INTRODUCTORY ASTRONOMY: PLANETARY SYSTEMS  
FALL QUARTER, 2013

Course web site: <http://www.ucolick.org/~jfortney/3.htm>

Professor: Jonathan Fortney

TAs: Emily Cunningham  
Chris Mankovich

Book: *The Cosmic Perspective: The Solar System, 7<sup>th</sup> Edition, with MasteringAstronomy*

When: Tuesday/Thursday, 2-3:45 p.m.

Where: Thimann Lecture Hall 3

Sections: Tuesday, 6:00-7:10 p.m., Phys Sciences 114  
Wednesday, 8:00-9:10 a.m., Phys Sciences 114  
Wednesday, 11:10 a.m.-12:10 p.m., Nat Sci Annex 101  
Friday, 3:30-4:40 p.m., Nat Sci Annex 101

Sections are not required, but attendance will be essential to your success

**Professor Fortney's contact information:**

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Office: 275 ISB (Interdisciplinary Sciences Building)

Office hours: Wednesdays, 1:30pm – 3 pm

**Emily Cunningham's contact info:**

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Office: ISB 255

Office hours: Mon 3:30-4:30, Tues 5-6, Weds 11:30-12:30

**Chris Mankovich's contact info:**

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Office: ISB 355

Office hours: Tues 11-12 and 4-5

**Topics:**

This is a one-term introductory course on planetary systems, covering the properties of the solar system and other planetary systems. Topics include the Sun, solar system exploration, the physical nature of the Earth and the other planets, comets and asteroids, the origin of the solar system, the possibility of life on other worlds, planet formation, and the discovery and characterization of planets beyond the solar system. It is intended for nonscience majors.

**Info:**

The course material is self-contained. No previous college-level math, physics, or astronomy is required. It will be assumed, however, that the student has mastered elementary arithmetic, algebra, and powers, and has some familiarity with scientific concepts and reasoning. A background in math or physics will help, but is not necessary to succeed in the class. Some of the best students in many previous intro to astronomy classes have been non-science majors who took a strong interest in the course material.

It is advisable to purchase a small inexpensive calculator, if you don't already own one. Be sure to get one that does powers and roots. Questions and classroom discussion are encouraged, both for your benefit and to help me properly pace the course. Please browse astronomy web sites (we'll provide some links on the class web site) and share your findings, comments, questions, etc in class.

To get the most out of class (and a good grade), it is critical that you attend lectures. In order to get the most out of lectures, it is also a really good idea to read the chapter before hand so that you are familiar with the material. It is also extremely important to attend discussion sections. Students who do not attend both discussion sections and lecture are at a huge disadvantage for exams, homework, and the overall grade.

**Homework:**

There will be homework assignments every week to help you digest the material. All homework will be assigned via the textbook web site: [www.masteringastronomy.com](http://www.masteringastronomy.com). You can register on that web site using the code that is in your textbook if you purchase a new book from the UCSC bookstore. If you arrange to get a used book, you will need to purchase access to the web site also.

To register, you will need your student ID, and you will also need the course ID, which has been emailed to all of you. You should expect to spend 2-3 hours per week reading the material in addition to the time required for the homework. You will find that the web site contains a lot of additional resources to help you understand the information. Explore it!

Your grade on the homework assignments will be clear as you complete the homework. Each assignment will be worth a certain number of points. Your final homework grade will simply be the fraction of the points you have earned during the term relative to the total number possible.

Homework assignments will appear each week on the course web page at [www.masteringastronomy.com](http://www.masteringastronomy.com). Each homework assignment will be available until its posted due date. Once that date/time is passed, the assignment will be "closed" and there will be no way to get the points for that homework. No exceptions can be made. You will be able to review any homework assignment at any time during the term.

**iClickers:**

We will be using the iClicker remotes (electronic, hand-held response pads) in most lectures to help you assess if you have understood the material and get feedback from the class. In most classes, you will get points for simply answering the questions, right or wrong. In some classes, the clickers will be used for a short quiz. If you skip lectures, or forget your clicker, you will not get the points from the questions or quiz that day. Come to lecture and bring your clicker!

Your iClicker score will be the fraction of the total number of points you have accumulated during the term compared to the total number of points possible. However, I will reduce the total number of points possible by 20% before I calculate your grades. In other words, you can miss about 4 lectures and still get up to 100% of the credit from questions and quizzes.

It will be important to register your iClickers in order for me to associate it with you! You can register any iClicker (new or used) for this class on the iClicker web site, <http://www1.iclicker.com/register-student-remote>

**Midterm and Final:**

There will be one midterms and a final. You must take both exams in order to pass the course. The final will cover material from the whole term.

Astronomy 3 qualifies at a MF (Mathematical and Formal Reasoning) class, so expect to use algebra and trigonometry. I will not be spending much time reviewing mathematics during lecture but this will be covered as needed in recitation section and office hours

**Grade Breakdown:**

iClickers: 10%      Homeworks: 25%  
 Midterm: 30%      Final: 35%

This class will be graded on a curve, so I cannot estimate what percentage you will need for a given grade. I expect the average grade to be at the B/B- boundary. Do your best.

Date	Due	Topics	Chapters
9/26,	Th	intro, solar system in perspective, seasons	1,2
10/1,	T	seasons, moon phases, history of astronomy	2,3
10/3,	Th	hw1 orbits, Kepler's laws, nature of science	3
10/8,	T	Newton's laws, energy	4
10/10,	Th	hw2 matter and light	5
10/15,	T	overview of the solar system	7
10/17,	Th	hw3 formation of planetary systems	8
10/22,	T	the Sun	14
10/24,	Th	hw4 geology/geophysics of terrestrial planets I	9
10/29,	T	geology/geophysics of terrestrial planets II	9
10/31,	Th	MIDTERM EXAM	
11/5,	T	atmospheres of terrestrial planets I	10
11/7,	Th	hw5 atmospheres of terrestrial planets II	10
11/12,	T	giant planets	11
11/14,	Th	hw6 satellites of the giant planets	11
11/19,	T	asteroids, meteorites, dwarf planets, comets	12
11/21,	Th	hw7 planetary systems around other stars I	13
11/26,	T	planetary systems around other stars II	13
12/3,	T	hw8 planetary systems around other stars III	13
12/5,	Th	life in the solar system and others	24
12/10	T	FINAL EXAM, 8-11 a.m.	