ASTR330: Spring 2015
The Solar System

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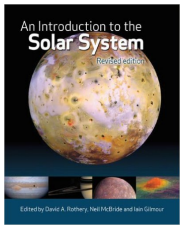

Class Textbook: *An Introduction to the Solar System* edited by David Rothery, Neil McBride and Iain Gilmour, 2011 edition, ISBN 978-1-107-60092-8. I recommend that you get the 2011 edition (new: $50-$60, used: $30-$40). I expect you to read it cover to cover over the course of the semester! If you have access to a very cheap 2004 version of the textbook, feel to get that. Here are some errors in the two editions: Errata: 2011 edition and Errata: 2004 edition

Class Web Page: http://www.astro.umd.edu/~hamilton/ASTR330/

Course Description:

This course is intended primarily for juniors and seniors who are not majoring in the physical sciences and who have successfully completed either ASTR 100 or ASTR 101. The course will emphasize the way in which we combine different types of information to answer fundamental questions about the Solar System, such as

- How did the Solar System form?
- How have the planets evolved subsequent to formation?
- Are there planetary systems like our own orbiting other stars?

Accordingly, we will consider the important physical and chemical processes in the Solar System and illustrate them with examples from the real planets, moons, and small bodies, rather than exploring

these objects one by one.

We will consider how our ideas have changed over the centuries, as well as the most modern data. What was Galileo's view of the Solar System? How has our view changed and how has the spacecraft named for Galileo helped to change this view? What are all the new Kuiper Belt (or Trans-Neptunian) Objects that we have discovered in the outer Solar System over the last several years and what relation do they have to the objects we have known about for centuries? Why do we need to send spacecraft out into the Solar System System?

We will use a little mathematics in this course and a lot of physical reasoning, and we will use information from geology, meteorology, and physics as well as from astronomy, all sciences that have contributed importantly to planetary science. Your challenge will be to master this diverse and extensive body of knowledge.

Course Expectations:

Attendance: In order to succeed in this course, I expect you to attend all lectures. This is very important! The material on the homeworks and exams are based upon the material covered in the lectures and in the text. If you have to miss a lecture be sure to look at another student's notes and make sure that you understand what was covered. There will be times during the semester when I will ask for written responses to questions. Your written answers will count towards your grade in the class.

Preparation: I expect you to be prepared to work. You will understand the lecture more easily if you preview the reading assignment. A more careful reading is recommended after lecture. It is also good to study your class notes sometime before the next lecture to make sure that everything is clear. I encourage you to ask questions in class, during office hours, or over email.

Study Habits: Study wisely and ask for help if you need it. If you just cram the night before the exam, you probably will not do very well. It is better (and easier) if you keep up with the material on a daily basis. Make it a point to read the chapters in pace with the lectures; this is one of the best study habits you can have. If you have questions, please see me.

Grading:

I grade on a point scale with different assignments weighted as shown in the table.

ASSIGNMENT	Homework	Exam I	Exam II	Participation	Final	Total
POINTS	200	100	100	100	200	700

Letter grades will be assigned based upon your curved cumulative score. Here is how your grade will be determined from your point total in the class.

Letter Grade	Course Total	Percentage
A	630-700	90%-100%
B	560-629	80%-89%
C	476-559	68%-79%
D	385-475	55%-67%
F	0-384	0%-54%

The point scale makes it possible for everyone in the class to do well. For example, if everyone scores above 80% in the course, you would all receive either a B- or better letter grade. I do use +/- modifiers - you will get a "+" if you are in roughly the upper 1/3 of students with the same letter grade and a "-" if you are in the lower 1/3. I may adjust the number of points required to get a given grade depending on the class averages; however, any adjustment will make it easier to get a given grade, never more difficult. You can monitor my current estimate of your grade from the class webpage as the semester progresses.

Exams

There will be two in-class exams. These exams are closed book with no notes and no calculators allowed. Each exam will consist of short answer questions and three or four essay questions. These exams are incremental (i.e., non-cumulative) checkups on how well you have learned the material. The schedule of lectures included in this syllabus shows what material will be covered on each exam. If for whatever reason, the University is *officially* closed on the exam date, the exam date shifts to the next lecture date.

According to University rules, **the final exam for this course will be held on Tuesday, May 17 from 1:30pm to 3:30pm in CSS 2428.** This final exam is cumulative, that is, it will cover *all* material discussed in this course. However, since chapters 7-9 will not be covered by the midterm exams (see Lecture Schedule), *the weight on these chapters will be higher than on earlier chapters*. The final will include short answer, essay, and problem solving questions with the exact combination to be determined. This exam is also closed book with no notes and no calculators allowed.

Missed Exams

If you are not able to take an exam due to illness or other legitimate reasons (as outlined in the Academic Info section of the schedule of classes) and you wish to take a make-up exam, you must

1) contact me by email **before** you miss the regularly-scheduled exam and
2) submit a valid written excuse for your absence **within one week** after the regularly-scheduled exam.

Homeworks

There are a total of four homeworks in this course. All homeworks will be handed out in class and will also be made available from the Assignments link from the class website. Turn in your homework assignment online on the Assignments website by the beginning of class on the due date. Late homeworks will be assessed a late penalty; to avoid this you can turn your homework in up to a week early. Please type up your assignments and convert them to PDF format before turning them in.

Although you may discuss the homework problems with your friends, the final writeup must be in your own words. Copying from a friend's homework, copying from a book, or allowing a friend to copy your homework is academic dishonesty and will not be tolerated in this class. If you consult a reference other than the course text, please acknowledge it in your homework - this includes websites!

Participation

One hundred points will be based on your in class participation. Many things will count toward this score including interactive and individual work done in class, attendance as measured by bonus point questions, occasional mini in-class quizzes based on the book chapters, thoughtful blog posts, and attentiveness and interactivity during class. The best was to succeed in any class is to attend and pay attention to lecture, to read the book, and to think critically about the course material. Participation points are designed to encourage these activities. Excessive use of phones, the internet, and laptop computers in class have been demonstrated to lead to poorer academic performance - these activities will count against your participation score.

Extra Credit

There will be no extra credit papers or projects. The following are the *only* ways to earn extra credit in this class:

- Attend Class: I will often ask questions worth bonus points during lectures.
- Post to the class Blog in first month of the class.

Academic Integrity

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the definitions and consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.shc.umd.edu/SHC/Default.aspx; pay particular attention to the links for students. **We are very serious about this.**

 Back to the ASTR330 Homepage

ASTR330 LECTURE SCHEDULE

Lecture Date	Lecture Topic	Reading
Tue. Jan. 26	**SNOWZILLA!!**	
Thu. Jan. 28	A Tour of the Solar System	Chapter 1
Tue. Feb. 2	A Tour of the Solar System	
Thu. Feb. 4	Terrestrial Planet Interiors	Chapter 2
Tue. Feb. 9	Terrestrial Planet Interiors	
Thu. Feb. 11	Terrestrial Planet Interiors	
Tue. Feb. 16	Planetary Volcanism	Chapter 3
Thu. Feb. 18	Planetary Volcanism	**HW#1 due**
Tue. Feb. 23	Planetary Volcanism	
Thu. Feb. 25	Review of Chapters 1-3	
Tue. Mar. 1	**EXAM I**	Chapters 1-3
Thu. Mar. 3	Planetary Surface Processes	Chapter 4
Tue. Mar. 8	Planetary Surface Processes	
Thu. Mar. 10	Terrestrial Planet Atmospheres	Chapter 5; **HW#2 due**
Tue. Mar. 15	**SPRING BREAK!!**	
Thu. Mar. 17	**SPRING BREAK!!**	
Tue. Mar. 22	Terrestrial Planet Atmospheres	
Thu. Mar. 24	Terrestrial Planet Atmospheres	
Tue. Mar. 29	The Giant Planets	Chapter 6
Thu. Mar. 31	The Giant Planets	
Tue. Apr. 5	The Giant Planets	**HW#3 due**
Thu. Apr. 7	**EXAM II**	Chapters 4-6
Tue. Apr. 12	Minor Bodies of the Solar System	Chapter 7
Thu. Apr. 14	Minor Bodies of the Solar System	
Tue. Apr. 19	Planetary Satellites	3 Handouts
Thu. Apr. 21	Tides and Planetary Satellites	
Tue. Apr. 26	Planetary Rings	3 Handouts
Thu. Apr. 28	The Origin of the Solar System	Chapter 8

Tue. May 3	The Origin of the Solar System	
Thu. May 5	Meteorites	Chapter 9
Tue. May 10	Meteorites, Final Review	**HW#4 due**
Tue. May 17	**FINAL EXAM** (1:30-3:30pm)	Chapters 1-9


Return to ASTR330 Home Page

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