

ASTR 201

The Sun and its Planets

Fall 2016

TR 10:00-11:15AM

Sears 480

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The syllabus, all assignments, homework, etc. are posted on the course website. Check frequently for updates and schedule changes.

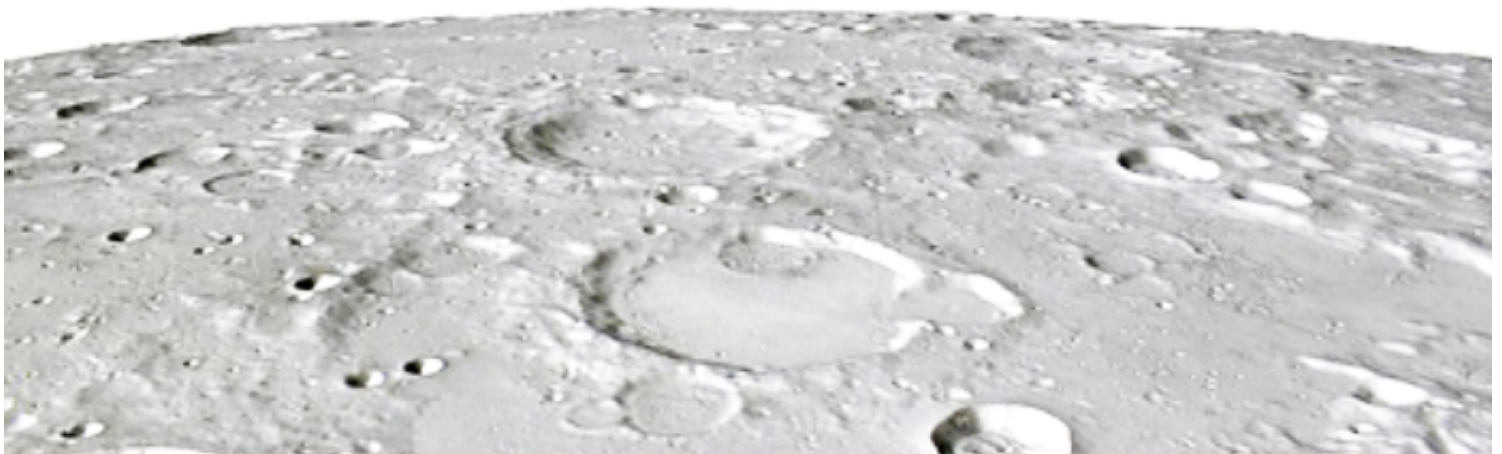
Textbook: *Cosmic Perspective - Solar System* (7th edition)

by Bennett, Donahue, Schneider, & Voit.

Be sure to take the homework questions from the right edition of the text

Course Description

An overview of the solar system; the planets and other objects that orbit about the Sun and the Sun itself as the dominant mass and the most important source of energy in the solar system. Concepts and the development of our knowledge will be emphasized. Not available for credit to astronomy majors.



ASTR 201 LECTURE SCHEDULE

Date	Lecture Topic	Reading	Work Due
Aug. 30	Introduction; Cosmic Scale	Chapter 1; App. C	
Sep. 1	Scientific Method	Chapter 3	
Sep. 6	Seasons and the Appearance of the Sky	Chapter 2	
Sep. 8	Lunar Phases & Eclipses	Chapter 2	
Sep. 13	Competing Cosmologies	Chapter 3	HW#1 DUE
Sep. 15	Kepler's Laws	Chapter 3	
Sep. 20	Gravity & the Laws of Motion	Chapter 4	
Sep. 22	Tides; Electromagnetic Radiation	Chapter 4, 5	
Sep. 27	Exam I Review	Chapter 5	HW#2 DUE
Sep. 29	EXAM I	Chapters 1-5	Exam Day
Oct. 4	Spectra	Chapter 6	
Oct. 6	Telescopes	Chapter 7	
Oct. 11	Solar System Contents	Chapter 8	
Oct. 13	Solar System Formation	Chapter 9	HW#3 DUE
Oct. 18	Terrestrial Planets: General	Chapter 10	
Oct. 20	Terrestrial Planets: Individual	Chapter 10	
Oct. 25	FALL BREAK	—————	
Oct. 27	Terrestrial Planets: Atmospheres	Chapter 10	
Nov. 1	Terrestrial Planets: Climate	Chapter 11	HW#4 DUE
Nov. 3	Exam II Review	Chapter 11	
Nov. 8	EXAM II	Chapters 1-11	Exam Day
Nov. 10	Climate change; Jovian Planets	Chapter 12	
Nov. 15	Moons of the Solar System	Chapter 12	

Nov. 17	Asteroids & Meteorites	Chapter 12	HW#5 DUE
Nov. 22	Comets	Chapter 13	
Nov. 24	THANKSGIVING	—————	
Nov. 29	Dwarf Planets & Exoplanets	Chapter 13	
Dec. 1	The Sun	Chapter 14	
Dec. 6	Life in the Universe	Chapter 24	
Dec. 8	Review	All	HW#6 DUE
Dec. 20	FINAL EXAM (12-3pm)	All of the above	Exam Day

Learning Outcomes

After taking this course, students should be able to

- Relate observations of the night sky: rising and setting motions, lunar phases, stars and planets
- Describe Earth's motion in space and how it affects the sky we see
- Explain the reasons for seasons, lunar phases, and eclipses
- Outline the Ptolemaic and Copernican cosmologies
- Describe the roles of Copernicus, Brahe, Kepler, and Galileo in the Scientific Revolution
- Describe and apply Newton's Laws of Motion and Universal Gravity
- Explain the nature of electromagnetic radiation
- Describe thermal radiation and Kirchoff's Laws
- Summarize properties of telescopes and their instrumentation
- Discuss solar system formation and structure
- Describe properties of planets, their moons, dwarf planets, comets, and asteroids
- Explain the techniques for detection of exoplanets
- Discuss the general properties of known exoplanets
- Distinguish the basic traits of legitimate science, and the methods of scientific reasoning
- Paraphrase conceptual ideas through written and verbal work (homework, exams, and papers)

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Spring 2015

Grading

Grades are based on a point scale with different assignments weighted as shown in the table. The points are distributed across a variety of exercises so that no single thing will dominate your grade. However, this also means that it is imperative that you complete all assignments. We will drop the lowest homework, but zeros on multiple homeworks fail to add up in a big way.

ASSIGNMENT	Homeworks	Exam I	Exam II	Final	Total
POINTS	150	100	100	150	500

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

Letter Grade	Course Total	Percentage
A	450-500	90%-100%
B	400-449	80%-89%
C	350-399	70%-79%
D	275-349	55%-69%
F	0-274	0%-54%

The point scale makes it possible for everyone in the class to do well. For example, if everyone scores above 90% in the course, you would all receive A's. On the other hand, if no one does this well, I may adjust the number of points required to get a given grade. Any adjustment will make it easier to get a given grade, never more difficult (i.e., any curve that is applied can only benefit your grade).

ASTR 201 Assignments

Homeworks

Assignment	Points	Due Date
Homework #1	30	Tuesday, Sep. 13
Homework #2	30	Tuesday, Sep. 27
Homework #3	30	Thursday, Oct. 13
Homework #4	30	Tuesday, Nov. 1
Homework #5	30	Thursday, Nov. 17
Homework #6	30	Thursday, Dec. 8

There are 6 homeworks with 6 problems worth 5 points each, plus one extra credit problem worth 2 points for each homework assignment. We will drop your lowest homework score so that your grade will be based on the best 5 out of 6 homework assignments. *There will be no make-ups nor other form of extra credit.*

All homeworks are due at the *beginning* of lecture on the date specified. Homeworks are late (and suffer a 5 point penalty) after lecture begins. The end of lecture is the last opportunity to turn in homeworks with a 5 point late penalty. After that, homeworks will no longer be accepted.

Always put your name on your homework. Be sure to type or write neatly - we can not give credit for things we can not read. For things like multiple choice questions, it is necessary to demonstrate understanding. *Succinctly* explain *why* the answer you chose is correct. It isn't good enough to get the right answer; you need to understand *why* it is the right answer.

Exams

Exam	Points	Date	Time	Place
Exam I	100	Thursday, Sep. 29	10:00-11:15am	Sears 480
Exam II	100	Tuesday, Nov. 8	10:00-11:15am	Sears 480
Final Exam	150	Tuesday, Dec. 20	12:30-3:30pm	Sears 480

Midterm Exams

There will be two in-class examinations during the semester as noted above. These exams are closed book with no notes, calculators, cell phones, ipods, or implants allowed. Each exam will consist of multiple choice questions, essay questions, and problem solving questions. Just your brain and the writing instrument of your choice. If for whatever reason, the University is *officially* closed on the exam date, the exam date shifts to the next lecture date.

Final Exam

The final exam is cumulative; it will cover *all* material discussed in this course. Some extra emphasis will be given covered after the second midterm. The final will include multiple choice, essay, and problem solving questions, greatly resembling a longer version of the midterms.

Note the date of the final exam. Do not make plans to leave campus before the final!

Missed Exams

The first rule of missing exams is:

DON'T

If you are not able to take an exam due to illness or some other legitimate reason and you wish to take a make-up exam, you **must**

1. contact me (by voice or e-mail) **before** you miss the regularly-scheduled exam and
2. document a valid excuse for your absence.

Make-up exams must be taken promptly. Note that in the case of the final exam, there is an extremely narrow window before final grades must be submitted.

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HOMEWORK ASSIGNMENTS

Homework problems are assigned from the **7th edition** of the textbook *The Cosmic Perspective - The Solar System*.

Be sure you are doing the right homework problems! Other editions of the text will have different questions.

There are 6 homeworks with 6 problems worth 5 points each, plus one extra credit problem worth 2 points for each homework assignment.

All homeworks are due at the *beginning* of lecture on the date specified. Homeworks are late (and suffer a 5 point penalty) after lecture begins. The end of lecture is the last opportunity to turn in homeworks with a 5 point late penalty. After that, homeworks will no longer be accepted.

Remember to put your name on your homework! Be sure to type or write neatly - we can not give credit for things we can not read.

Homework #1 (30 Points) Due Tuesday Sep. 13

Chapter	Problems	Extra Credit	Pages
Chapter 1	23, 25, 46	47	<i>p. 22, 23</i>
Chapter 2	26, 33, 42	—	<i>p. 51, 52</i>

Homework #2 (30 Points) Due Tuesday Sep. 27

Chapter	Problems	Extra Credit	Pages
Chapter 3	26, 48	50	<i>p. 81, 82</i>
Chapter 4	26, 32, 51	—	<i>p. 134-136</i>
Chapter 5	28	—	<i>p. 162</i>

Homework #3 (30 Points) Due Thursday Oct. 13

Chapter	Problems	Extra Credit	Pages
Chapter 5	54	——	<i>p. 163, 164</i>
Chapter 6	23, 26	——	<i>p. 186</i>
Chapter 7	26, 28	39	<i>p. 212, 213</i>
Chapter 8	25	——	<i>p. 231</i>

Homework #4 (30 Points) Due Tuesday Nov. 1

Chapter	Problems	Extra Credit	Pages
Chapter 9	29, 31, 56	——	<i>p. 267, 268</i>
Chapter 10	33, 36, 40	58	<i>p. 306, 307</i>

Homework #5 (30 Points) Due Thursday Nov. 15

Chapter	Problems	Extra Credit	Pages
Chapter 11	27, 32, 49	——	<i>p. 337, 338</i>
Chapter 12	25, 31, 45	46	<i>p. 364, 365</i>

Homework #6 (30 Points) Due Thursday Dec. 8

Chapter	Problems	Extra Credit	Pages
Chapter 13	32, 51, 53	——	<i>p. 394, 395</i>
Chapter 14	29, 50, 53	——	<i>p. 484, 485</i>
Chapter 24	——	51	<i>p. 721</i>