

Astronomy 108: Descriptive Astronomy

Spring Term 2009

MWF 1:00-1:50

Science 1, room 121

Instructor

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Textbook

Astronomy: A Beginner's Guide to the Universe
E. Chaisson and S. McMillan
Pearson Prentice Hall, fifth edition, 2007
ISBN: 0136140645

Course Overview

This course provides an overview of our solar system, our galaxy, and the universe at an introductory level. The first third of the course focusses on the solar system, the sun and the planets, asteroids, comets, and meteoroids, how these entities appear and move in the night sky, and what is known about the formation and the composition of these. The second third of the course focusses on the galaxy, star formation, and the life-cycles of stars. The final third of the course focusses on the large scale structure of the universe, and questions of the origin and fate of the universe. Mathematics is used only very minimally in this course and no prior experience with mathematics, physics, or astronomy is assumed.

Office Hours

I hold office hours from 11:00am until 12:30 pm Mondays, Tuesdays, and Fridays. During these times I'll be in my office, and will be happy to meet with any student. Alternatively, students are encouraged to email or phone me to schedule an appointment. Please leave a voice message if I'm not in the office. I'll make every effort to accommodate you.

Course Compass

There is a web-based instructional resource which complements the textbook. This is accessed online at <http://www.coursecompass.com>. A login ID and a password should be supplied along with the textbook. This website includes access to online tutorials and video demonstrations and diagnostic quizzes.

Reading

The schedule below indicates the chapter of the textbook covered during the lectures. Students should make time each week to carefully read the textbook and take notes while doing so. Proper understanding of the subject will be enhanced considerably by reading the text and thinking critically about what you are reading. This reading should be understood as a bona fide responsibility, and should be undertaken seriously and diligently. Students are highly encouraged to ask questions which should arise from reading the text.

Homework

Homework for this class consists of reading that chapter of the textbook corresponding to a given set of lectures, as explained above, and thinking critically about these chapters. Students should also do each of the “Problems” supplied at the end of each chapter. These will not be collected, but some of these will be reviewed in class; students are encouraged to suggest problems during the lecture period. The examinations will include problems culled from the chapter problems and from the online quizzes.

Quizzes

Periodically, students will be instructed to take the online chapter quizzes supplied on the course compass web site described above. The grades for these quizzes will be automatically entered into a course grade book by the web service. The due-dates for these quizzes will be announced in class with at-least a three day advance notice. These quizzes can be taken at the students leisure.

Exams

There will be two in-class midterm exams, and one final exam. See below for the respective dates. Each exam will be cumulative, meaning that all material covered up to that point will be tested. Only serious, utterly unavoidable, fully-verifiable excuses will be accepted to explain absence from any of the three examinations. In almost all circumstances, a missed exam will result in an exam grade of zero.

Grading

You will receive a numerical grade for this course, computed using the following scheme:

Online Quizzes	25%
Midterm Exam #1	25%
Midterm Exam #2	25%
Final Exam	25%
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Total	100%

The numerical course grade will be converted to a letter grade using a fair and generous grading curve.

Date	Lecture Topic	Reading
Jan 14	Introduction	
16	The Celestial Sphere	Chapter "E"
19	The Ecliptic	
21	Meet the Solar System	Chapter 4
23	Asteroids, Comets, and Meteoroids	
26	The Formation of the Solar System	
28	The Earth and the Moon	Chapter 5
30	Atmospheres, Tides, and Magnetospheres	
Feb 2	Mercury and Venus	Chapter 6
4	Mars	
6	Jupiter	Chapter 7
9	Saturn	
11	Uranus and Neptune	
13	REVIEW	
16	MIDTERM EXAM # 1	

Table 1: Provisional schedule for the first third of Astronomy 108. This may be subject to modification. Up-to-date reading and homework assignments will be provided during the lectures.

Date	Lecture Topic	Reading
Feb 18	Moons and Rings	Chapter 8
20	Pluto, the Kuiper belt and the Oort Cloud	
23	NO CLASS	
25	NO CLASS	
27	NO CLASS	
Mar 2	NO CLASS	
4	The Sun	Chapter 9
6	The Solar Cycle	
9	The Solar Furnace	
11	Stellar Luminosity	Chapter 10
13	The Hertzsprung-Russell Diagram	
16	Star Formation	Chapter 11
18	Nebulae and Star Clusters	
20	Stellar Evolution	Chapter 12
23	Fates of Stars	
25	Supernovae	
27	REVIEW	
30	MIDTERM EXAM # 2	

Table 2: Provisional schedule for the middle third of Astronomy 108. This may be subject to modification. Up-to-date reading and homework assignments will be provided during the lectures.

Date	Lecture Topic	Reading	
Apr 1	Neutron Stars	Chapter 13	
3	Black Holes		
6	NO CLASS		
8	NO CLASS		
10	NO CLASS		
13	NO CLASS		
15	The Milky Way		Chapter 14
17	The Galactic Center		
20	Classifying Galaxies		Chapter 15
22	Redshift and Hubble's Law		
24	Dark Matter		Chapter 16
27	Large Scale Structure of the Universe		
29	Introduction to Cosmology		Chapter 17
May 1	The Big Bang		
4	The Early Universe		
6	Are We Alone?	Chapter 18	
TBA	FINAL EXAM		

Table 3: Provisional schedule for the final third of Astronomy 108. This may be subject to modification. Up-to-date reading and homework assignments will be provided during the lectures.