

Astronomy 161 – An Introduction to Solar System Astronomy
Autumn Quarter 2009
Syllabus

Lectures: MTWRF, 9:30-10:18am, 0100 Mendenhall Laboratory (ML 0100)

Professor: Scott Gaudi

Office: 4057 McPherson Lab (614-292-1914)

Office Hours: Tues, Thurs 11:30-12:30am, or by appointment

E-Mail: gaudi.1@osu.edu

TA: Jason Eastman

Office: 4061 McPherson Lab (614-292-9242)

Office Hours: Mon, Wed 2:00-3:00pm

E-Mail: eastman.37@osu.edu

Recommended Textbook:

21st Century Astronomy (2nd Edition), by Jeff Hester, et al.

Note that this book is recommended but not required. If you are not planning on taking Astronomy 162, consider buying *The Solar System* by the same authors (ISBN-10: 0-393-39009-2), which is just the first half of the full textbook repackaged. It will save you money.

If you are planning on taking Astronomy 162, I recommend buying the full textbook, as just buying the first and second halves as separate books will cost much more than the full edition. If you can find a copy of the paperback edition without the student CD-ROM (which we will not use), you can save a little money.

Course Web Page:

<http://www.astronomy.ohio-state.edu/~gaudi/AST161/index.html>

Course Description

Astronomy 161 is an introduction to modern astronomy, with an emphasis on the solar system. We will begin with an exploration of the historical development of astronomy to trace the path by which we have come to our present understanding of the Universe, building up along the way the basic toolkit of physical concepts that we will need for our later discussions. The second half of the course will be devoted to an overview of modern solar system astronomy, with particular attention paid to the constituents of the solar system, comparative planetology (structure, surfaces, & atmospheres) and the history and evolution of the solar system.

Homework Assignments

There will be four homework assignments during the quarter, each consisting of a set of multiple-choice questions. The questions are open book, open notes, open discussion. Homework will be handed out on Monday and due the following Monday.

Homework 1: Due Monday, October 5

Homework 2: Due Monday, October 12

Homework 3: Due Monday, October 26

Homework 4: Due Monday, November 16

Collectively the homework will count for **15%** of your grade, equivalent to one quiz. The questions on the homework will generally be more challenging than those on the quizzes. They are designed to get you thinking about the course topics in an active way. I encourage you to form study groups to discuss the questions, though you must decide on the final answers yourself.

Homework is due in class on the due date and no late homework will be accepted, except for legitimate, documented emergencies.

In-Class Quizzes

There will be three in-class quizzes, scheduled for the following days:

In-Class Quiz 1: Friday, October 16

In-Class Quiz 2: Thursday, November 5

In-Class Quiz 3: Monday, November 30

The quizzes will be held at the normal class time, 9:30-10:18am, and you will have the entire class time to take it. Bring only a #2 pencil with you: no notes, books, scrap paper or any other items will be allowed.

All of the in-class quizzes and the final exam will be closed-book, **closed-notes multiple-choice** tests. These computer-generated tests provide each student with a unique test (you are asked the same questions and answers as everyone else, but the order of questions and answers is randomized).

The in-class quizzes will cover the material in the lectures and readings since the previous quiz, whereas the final exam will be comprehensive, covering the entire quarter. Each quiz consists of 50 multiple-choice questions. The general emphasis is on the important core facts covered, plus some questions that require putting ideas together and drawing correct conclusions. I will also ask a small number of quantitative questions, but the constraints of the multiple-choice format restrict the kinds of such questions I can ask on a 50-question test. As such, I usually defer more complicated quantitative questions to the homework where we have more scope to ask such problems.

Each of the three quizzes will count as **15%** of your final grade.

Final Exam

The Final Exam will be on **Tuesday, December 8 from 9:30-11:18am in 0100 Mendenhall Laboratory**. Attendance at the Final Exam is mandatory. You only need to bring a #2 pencil for the final.

The final will be **comprehensive**, covering all lectures, and has the same multiple-choice format as the in-class quizzes, only it will be twice as long. It is worth **40%** of your final course grade.

No makeup final will be offered.

If you miss the final exam, you will be given an incomplete (I) with an alternative grade equal to getting a zero on the final, and have to make it up during Winter Quarter 2010 to avoid the alternative grade.

In keeping with official University policy, early finals will **not** be available for those persons who wish to depart early for the break. Please plan ahead and make your travel plans accordingly.

Grading Policy

- The four homework assignments will collectively account for **15%** of your grade, equivalent to 1 in-class quiz.
- Together, the three in-class quizzes count for **45%** of your grade.
- The final exam will be cumulative, covering all material from the class. It accounts for **40%** of your grade, and must be taken by all students.
- All grading, homework and exams, is done on a standard C+ curve. This means the median grade in the class will approximately correspond to a C+.

Lectures and Attendance

Lectures will be daily, 9:30-10:18am, in 0100 Mendenhall Laboratory on the OSU main campus in Columbus.

The daily lectures are your primary resource for this course. Daily attendance is strongly encouraged.

We will not cover all of the topics in the book and I will supplement the book with additional material that is not covered in the book. Outlines of each lecture will be available via the class website. These outlines are intended to be useful aids for studying and following along in class. Remember, these are only outlines of what I cover each day in class, not comprehensive transcripts of the lectures. In particular, I will show many images and animations during class that will not be available on the class website.

Related Readings in 21st Century Astronomy

Because introductory astronomy textbooks designed for non-majors are rarely organized exactly the same as our courses, we will not strictly follow the order of topics in the book. You can expect to jump around some as the course progresses. As such, instead of specific reading assignments, each section of the course will have reading suggestions listed on the class website. However, not all topics in this course are covered by the book, and similarly not all topics covered in the book will be discussed in class. You are only responsible for the contents of my lectures.

Students with Disabilities

Any student who feels that he or she may need an accommodation based on the impact of a disability should contact Professor Gaudi to discuss their specific needs. We will rely on the Office of Disability Services at OSU to verify the need for accommodation and to help develop the appropriate strategies. Students with disabilities who have not previously contacted ODS are encouraged to do so by visiting the ODS website (www.ods.ohio-state.edu) and requesting an appointment.

Academic Misconduct

All OSU professors are required to report suspected cases of academic misconduct to the Committee on Academic Misconduct. See the University's Code of Student Conduct for details. The most common forms of misconduct in classes such as this one is copying from another student's exam. All cases will be investigated following University guidelines.

Classroom Etiquette

To help establish and maintain a courteous, distraction-free learning environment in our classroom, I ask that all students please observe the following basic rules of behavior during lectures and exams:

Use of cell phones and pagers is prohibited.

This includes using cell phones for instant messaging, email, web, pictures, etc. When in class, all cell phones and pagers must be **turned off** (i.e., not in a standby or "silent ring" mode).

Use of laptops and networked devices is prohibited.

Surfing the web, instant messaging, reading email, or typing notes on a keyboard during class is very distracting to those around you. When in class, all laptop computers and networked devices (e.g., PDAs) must be turned off and put away. The only exceptions are approved devices for enhancing sound or vision for the hearing/vision impaired.

Please do not start packing up until class is completely over

Nothing is more rude or distracting than the noise of notebooks closing and jackets and backpacks rustling while the professor is trying to finish up. I'll be very clear when we're done, and I work very hard to stay on time, so please wait until I get to the end.

If you come late or have to leave early, please sit near the back of the room.

This will make your late arrival or early departure less disruptive for your fellow students.

No conversing during lectures.

Please respect your fellow students and do not carry on conversations during class.

Your cooperation in observing these rules is greatly appreciated.

GEC Goals and Objectives

Astronomy 161 is a General Education Curriculum (GEC) Physical Science course in the Natural Science category. Natural Science coursework fosters your understanding of the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world. The goals for this course include:

- Understanding the basic principles and central facts of astrophysics, and their relation to other ideas in the physical and biological sciences.
- Understanding how we discovered the important principles and facts of astrophysics, thus understanding key events in the history of science both as events in human history and as case studies in the methods of science.
- Investigating the relationship between science and technology,
- Understanding the social and philosophical implications of major scientific discoveries.

Learning Objectives:

In Astronomy 161, the specific learning objectives to achieve these course goals are:

- To investigate the basic facts, principles, theories, and methods of modern science as practiced in astrophysics.
- To learn the basic observable phenomena of astronomy, and how these have had both practical applications (time keeping and calendars), and played a key role in advancing our understanding of the Universe.
- To learn important events in the history of astronomy, particularly the development of our understanding of the nature of the Solar System and the discovery of the physical laws that govern its motions, formation history, and evolution.

- To explain the role of modern technology in the investigation of astrophysical phenomena, and the crucial role played by technological advances in extending our knowledge of the Universe.
- To explore how discoveries in astrophysics have implications for how we have come to view our place in the Universe, and by comparing the Earth to other planets in our Solar System provide a physical framework for understanding the possible impacts of our activities on the Earth.