

Astronomy 1002: Discovering the Universe

Lecture Location: Pugh Hall (PUGH) 170

Lecture Times: Mondays, Wednesdays, and Fridays
1:55PM – 2:45PM (7)

Instructor: Dr. Paul Sell
Office: Bryant Space Sciences Center, Room 318 (temporary)
Office Hours: Mondays / Wednesdays 3 – 4PM, Tuesdays 11:45AM – 12:45PM,
Thursdays 12:45 – 1:45PM, and by appointment
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Teaching Assistant: Prerak Garg
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Office Hours: No office hours or discussion/recitation sessions; helper/grader only
Contact Information: prerakgarg@ufl.edu

Course Website: Canvas/E-Learning

Textbook: You must purchase the required e-text with access to Mastering Astronomy: *The Essential Cosmic Perspective*, 8th edition, by Bennet, Donahue, Schneider, Voit (ISBN 9781323596930). Instructions for doing this is available through the course's E-learning website.

Other references may be used for supplemental information throughout the course.

Brief Description: An elementary, largely non-mathematical survey of our universe of stars, planets and galaxies. Acquaints the student with the development of astronomy as a human activity with how we know as well as what we know. Primarily for those not majoring in physical science or mathematics.

General Education Course Description

This course meets the requirements for a General Education physical science (P) course.

Physical Science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments. A minimum grade of "C" is required for general education credit.

General Education Student Learning Outcomes:

- Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.
- Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.
- Students analyze information carefully and logically from multiple perspectives, using discipline specific methods, and develop reasoned solutions to problems.

Course Learning Objectives:

- To provide students with a broad overview of modern astronomy. This will be accomplished through lectures and weekly reading assignments. Students will be able to define common astronomical terms and explain basic concepts and theories for a range of astrophysical phenomena.
- To teach the students the scientific process and how we can understand the Universe using basic physical laws derived on Earth. This will be accomplished through lectures and in-class discussions as well as homework assignments. Students will gain an understanding of how the scientific method is applied to the field of astronomy.
- To review the major scientific developments in astronomy and summarize their impacts on society and our environment such as recognizing our place in the Universe, comparing energy sources, and how atmospheric effects of planets influence climate change. Students will be able to critically evaluate the difference between good science and bad science. Evaluations will be based on in-class discussions, exams and an observing project.
- To teach scientific reasoning. Scientific reasoning is the use of logic, observations, and critical thinking to interpret the world around you. This will be accomplished through in-class discussions, homework assignments and the observing project. Students will formulate empirically-testable hypotheses derived from the study of physical process and phenomena and apply logical reasoning skills through scientific criticism and argument. These skills will serve you well in your daily lives regardless of what career you pursue.
- To improve the scientific literacy. Literacy is the basic concepts and terminology of science is necessary if you which to follow science stories in the news or make informed decisions (such as voting) on issues that pertain to science. This will be accomplished through in-class discussions about current news topics in astronomy and as part of the observing project.
- To help students learn to communicate scientific ideas clearly and effectively using oral, written or graphic forms. This will be done through in-class discussions (oral) and as the written component of the observing project.

Detailed Description of the Graded Course Structure

Homework: Homework will be assigned throughout the semester through Mastering Astronomy. The assignment with the lowest grade will be dropped. Late homework will be penalized 10% per day.

Exams: There will be three exams given over the course of the semester: two midterm exams and a final exam. The midterm exams will cover material in each of the first and second thirds of the course and the final exam will be cumulative; all exams will include material from lecture and the book, though students should use the lectures as a study outline. The Final Exam is scheduled for 04/30/2020 @ 3:00PM – 5:00PM. Bring a working non-internet-capable scientific calculator, at least two pencils (with erasers), and your ID with you to all exams.

Observing Project: One of the most enjoyable aspects of Astronomy is actually observing the sky either with the eyes, binoculars or a telescope. Students are expected to attend an observing session at the campus observatory. These take place every clear Friday evening during the semester (directions to the observatory and times are provided in lecture and on the class web site). You must complete an observing form (download from the class web site) describing what the objects that you observe through the telescopes actually look like and explaining their astronomical significance. You must also obtain a special token from the staff at the observatory and attach it to your form. Remember to put your name on your form. *Do not wait until the due date - it may be cloudy!*

Extra Credit: A handout and discussion to explain the extra credit options will be provided early in the semester. All guidelines including due dates will be provided in the handout.

Course Grade Summary Breakdown: Each of the components of class described above will be assigned the following weights to determine your final score:

- Observing Project: 20%
- Homework: 20%
- Two Midterm Exams: 15% each
- Final Exam: 30%

Grading Scale: (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>)

<u>Score</u>	<u>Grade</u>	<u>Score</u>	<u>Grade</u>	<u>Score</u>	<u>Grade</u>
90% – 100%	A	77% – 79%	B–	64% – 66%	D+
87% – 89%	A–	74% – 76%	C+	60% – 63%	D
84% – 86%	B+	70% – 73%	C	57% – 59%	D–
80% – 83%	B	67% – 69%	C–	Less than	E

Class/University Policies:

- Please put your phones and, unless you are taking notes, your laptops away during class: no Facebook, Twitter, texting, etc.
- Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting disability.ufl.edu/students/get-started. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Classroom accommodations can only be provided after appropriate verification.
- Responsible citizenship among college students includes honesty and integrity in classwork; regard for the rights of others; and respect for local, state, and federal laws as well as campus standards. Students are responsible for understanding the standards of the “Code of Student Conduct” and the Student Handbook. From the Academic Honesty Guidelines and Student Conduct Code in the University of Florida Undergraduate Catalog: “Academic Honesty: The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge are diminished by cheating, plagiarism, and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff, and administrators who practice dishonest or demeaning behavior.” Any student caught cheating will be referred to the Honor Code Chancellor.
- Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Tentative Class Schedule (40 total hours; 19 chapters; 2 hr/chapter + 1):

<u>Week Starting (hr)</u>	<u>Topics Covered</u>	<u>Week Starting (hr)</u>	<u>Topics Covered</u>
01/06 (3)	Introduction to the Course, Chapters 1/2	03/09 (3)	Chapters 11/12
01/13 (3)	Chapters 2/3	03/16 (3)	Chapters 12/13
01/20 (2)	Chapters 4/5	03/23 (3)	Chapters 13/14
02/03 (3)	Chapters 5/6	03/30 (3)	Midterm, Chapters 15/16
02/10 (3)	Midterm, Chapter 7/8	04/06 (3)	Chapters 16/17
02/17 (3)	Chapters 9/10	04/13 (3)	Chapters 17/18
02/24 (3)	Chapters 10/11	04/20 (2)	Chapters 18/19
03/02	Spring Break	04/30	Final Exam

N.B. We will skip most of chapter 4 and introduce the many physics concepts there as needed.