Astronomy 1002: Discovering the Universe

Course Dates for 2021 Fall:
August 23 – December 15

Lecture Times and Locations:
Mondays, Wednesdays and Fridays: 11:45 AM – 12:35 PM (5) in PUGH 170

Instructor:	Dr. Paul Sell
Office:	Bryant Space Sciences Center 222 or the Zoom link in Canvas Modules
Office Hours:	Mondays and Wednesdays 3:00PM – 4:00PM; Tuesdays and Thursdays 2:00PM – 3:00PM; and by appointment
Email:	psell@ufl.edu
Office Phone:	(352) 294–1867

Teaching Assistant:	Jared Cathey
Office:	Use the Zoom link in Canvas Modules; no in-person office hours
Office Hours:	Mondays 1-2PM and by appointment
Email:	jaredcathey@ufl.edu

Teaching Assistant:	Maria Galloway-Sprietsma
Office:	Use the Zoom link in Canvas Modules; no in-person office hours
Office Hours:	Wednesdays 1:30-2:30PM and by appointment
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Teaching Assistant:	Natalia Guerrero
Office:	Use the Zoom link in Canvas Modules; no in-person office hours
Office Hours:	Fridays 1-2PM and by appointment
Email:	natalia.guerrero@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). Doing this through UFAllAccess, which will provide you with your access code, is highly recommended.
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

Worksheets: Worksheets will be assigned during many classes to give you an opportunity to review the material and give the instructor the opportunity to check your comprehension of the material. Worksheets typically will be due at the end of the class they are assigned and are not accepted late. Class participation is expected and will greatly help you complete this work.

The number and frequency of these assignments is at the discretion of the instructor. The lowest few (depending on the total number given) will be dropped or counted as extra credit for your final grade. Given this lenient policy, please do not contact the instructor to make up this work unless you have a serious ongoing problem, which should be an excused absence consistent with university policy: **https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/**.

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 3:00PM – 5:00PM on 12/15/2021. Bring a working non-internet-capable scientific calculator, at least two pencils (with erasers), and your ID with you to all exams.

Class Project: A handout and discussion to explain the class project will be provided at the appropriate time. All guidelines including due dates will be provided in the handout.

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:

- Worksheets: 10%
- Homework: 15%
- Class Project: 20%
- Two Midterm Exams: 15% each
- Final Exam: 25%

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

Score	Grade	Score	Grade	Score	Grade
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.
- You may need to make calculations on occasion, so you should always have available a scientific calculator in addition to your usual materials for taking notes.
- 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/.

Campus Resources

Health and Wellness

- *U Matter, We Care*: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
- *Counseling and Wellness Center*: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *Student Health Care Center*: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.
- *University Police Department*: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
- *UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Academic Resources

- *E-learning technical support*: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- *Library Support*: Various ways to receive assistance with respect to using the libraries or finding resources.
- *Teaching Center*: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- *Writing Studio:* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

- *Student Complaints On-Campus*: Visit the Student Honor Code and Student Conduct Code webpage for more information.
- *On-Line Students Complaints*: View the Distance Learning Student Complaint Process.

Tentative Class Schedule

(42 total classes; 19 chapters; ~2 classes/chapter)

Week Starting (hr)	Topics Covered	Week Starting (hr)	Topics Covered
08/23 (3)	Introduction to the Course, Chapters 1/2	10/25 (3)	Chapters 11/12
08/30 (3)	Chapter 2	11/01 (3)	Chapters 12/13
09/06 (2)	Chapters 3/4	11/08 (3)	Midterm, Chapters 13/14
09/13 (3)	Chapters 4/5	11/15 (3)	Chapters 15/16
09/20 (3)	Chapters 5/6	11/22 (1)	Chapters 16/17
09/27 (3)	Midterm, Chapters 7/8	11/29 (3)	Chapters 17/18
10/04 (2)	Chapters 9/10	12/06 (1)	Chapters 18/19
10/11 (3)	Chapters 10/11	12/15 (3:00 PM – 5:00 PM)	Final Exam
10/18 (3)	Spring Break		

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