

Astronomy 3019: Astronomy & Astrophysics 2

Course Dates for 2020 Fall: August 31 – December 16

Lecture Times: MWFs, 12:50 PM – 1:40 PM (6)

Lecture Location: Zoom Conferences (see Canvas menu)

Instructor: Dr. Paul Sell
Office: Working from home (use Zoom link in Canvas Home for office hours)
Office Hours: M,W 1:45-2:30PM; T 2:45-3:30PM; R 4:00-4:45PM; by appointment
Contact Information: psell@ufl.edu

Teaching Assistant: Marika Edwards
Office: Working from home
Office Hours: by appointment
Contact Information: marika.edwards@ufl.edu

Course Website: Canvas/E-Learning

Textbook: You must purchase the required text (the same text used for AST3018: Astronomy and Astrophysics 1): *Foundations of Astrophysics*, by Ryden and Peterson (ISBN 978-0-321-59558-4).

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

Brief Description: This is an introductory course in Astronomy and Astrophysics designed for students majoring in astronomy, physics, math, or engineering. This course pairs with AST 3018, discussing about half of the major topics in astronomy. While the other course focuses on stellar astrophysics and the interstellar medium, this course primarily focuses on planetary science, relativistic phenomena, Galactic and extragalactic astrophysics, and cosmology.

General Education Course Description

AST 3018 & 3019 are GenEd physical science (P) courses. As the list of topics above demonstrates, the course covers not only the Universe and the bodies in it – planets, moon, stars, galaxies, etc. -- but also how we know about those things, making use of our understanding of the underlying physics of orbits and radiation. The course will focus on major scientific developments in astronomy & astrophysics and their impacts on society and the environment.

Physical Science: The physical and biological sciences provide instruction in the basic concepts, theories, and terms of science and the scientific method. Courses focus on major scientific developments and their impacts on society and the environment. You will formulate empirically-

testable hypotheses derived from the study of physical processes and living things and you will apply logical reasoning skills through scientific criticism and argument.

Student learning outcomes for a GenEd physical science course in astronomy are as follows:

I. Content

- Know the basic concepts, theories, and terminology of natural science and the scientific method in astronomy.
- Know the major scientific developments in astronomy and the impacts on society and the environment.
- Know relevant processes that govern physical systems in astronomy.

II. Critical Thinking

- Formulate empirically-testable hypotheses derived from the study of physical processes in astronomy.
- Apply logical reasoning skills effectively through scientific criticism and argument in astronomy.
- Apply techniques of discovery and critical thinking effectively to solve experiments and to evaluate outcomes.

III. Communication

- Communicate scientific findings clearly and effectively using oral, written, and/or graphic forms.
- Write effectively in several forms, such as in research papers and laboratory reports.

Detailed Description of the Graded Course Structure

Worksheets: Worksheets will be assigned during most classes to give you an opportunity to review the material and give the instructor the opportunity to check your comprehension of the material. Worksheets will be due shortly after the class it is assigned. Worksheets will be accepted late for half credit until the end of the day on the day they are assigned. Class participation will greatly help you complete this work.

The number and frequency of these assignments is at the discretion of the instructor, but will be approximately 15-20 in total. 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: Problem sets will be regularly assigned throughout the semester. Completed assignments must be uploaded to the appropriate location on Canvas. Late homework is penalized 25% per day; exception: when answers must be posted promptly for exam studying, no late homework after that point will be accepted. Working in groups is allowed, although if you

do, discuss the problem/solution and then write your own answers without looking at the other students' paper; also write the names of the people you worked with on the submitted homework. Each student is required to show all work and submit separate homework solutions to the appropriate place in Canvas; no emailed homework.

Exams: There will be one midterm exam and a final exam. The midterm exam will cover material from approximately the first half of the class (outline of topics/chapters will be provided when appropriate) and the final exam will primarily cover material after the midterm exam; both will include material from lecture and the book. The Midterm Exam will be during normal class time about halfway through the semester. The Final Exam is scheduled for 12/16/2020 @ 7:30 AM - 9:30 AM. Exams are linked through Canvas to the online proctoring service, Honorlock:

- You must use Google Chrome with the Honorlock Chrome Extension, which can be downloaded here: www.honorlock.com/extension/install
- In addition to the your usual desktop/laptop computer (not phone!), webcam (both audio and video required), and stable internet connection, you are required to show your student or government-issued ID for both exams. A scientific calculator will be available on your screen through Canvas/Honorlock, though you may also use your own non-internet-capable scientific calculator. You may also have one blank scratch sheet of paper and a pencil/pen. Otherwise your table space should be empty.
- When you are ready to test, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device!
- Honorlock support is available 24/7/365. If you encounter any issues, you may contact them by live chat (during the exam), phone (844-243-2500), and/or email (support@honorlock.com).
- [Honorlock Student Privacy Protection](#)

Project: A handout and discussion to explain the project fully will be provided when appropriate. 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: 15%
- Homework: 25%
- Midterm Exam: 20%
- Final Exam: 25%
- Project: 15%

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–	< 56%	E

Class/University Policies

- Though this is a 100% online class, my goal is to simulate the normal classroom experience as much as reasonably possible, encouraging group work in breakout rooms and pausing for questions when appropriate. Therefore, you should plan to regularly attend the normally scheduled class, which I hope you will find beneficial. Please follow normal classroom etiquette, stay focused, and take notes through the Zoom lecture.
- You may need to make calculations, so you should always have available a scientific calculator in addition to your usual materials for taking notes.
- Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.
- 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 (36 total classes; 12 chapters; ~3 classes/chapter):

Week Starting (Number of Classes)	Topics Covered	Week Starting (Number of Classes)	Topics Covered
08/31 (3)	Introduction to the Course, Chapter 8	10/26 (3)	Chapter 18
09/07 (2)	Chapter 8/9	11/02 (3)	Chapter 19
09/14 (3)	Chapter 9	11/09 (2)	Chapter 20
09/21 (3)	Chapter 10	11/16 (3)	Chapter 21
09/28 (3)	Chapter 11	11/23 (1)	Chapter 22
10/05 (3)	Chapter 12	11/30 (3)	Chapter 23
10/12 (3)	Chapter 12, Relativity	12/07 (2)	Chapter 24
10/19 (3)	Midterm, Relativity	12/16 (7:30–9:30AM)	Final Exam