

# LIFE IN THE UNIVERSE

AST2037, SECTION 1875, #23190, 3 CREDIT HOURS, FALL 2023

---

**INSTRUCTOR:** Dr. Charles M. Telesco

E-mail: [telesco@astro.ufl.edu](mailto:telesco@astro.ufl.edu)

Office: Bryant Space Science Center 414 (building across street from Hub)

Cell Phone: (352) 328-9264

**LECTURE TIME:** Tues, period 7 (1:55-2:45 pm) & Thurs, periods 7-8 (1:55-3:50 pm)

**LECTURE ROOM:** FLG 230 (Florida Gym)

**OFFICE HOURS:** The hour after class or (better) by appointment

**COURSE WEB SITE:** Canvas

**REQUIRED TEXT:** *Life in the Universe, 5th Edition*, by Bennett, Shostak, Schneider, & MacGregor published by Princeton University Press. Students can buy/rent/share the e-book instead of the paper book.

- Paperback ISBN 9780691241784
- e-book ISBN 9780691241791

**PRE-REQUISITES AND CO-REQUISITES:** None, although basic high school math skills (algebra & trig) are assumed.

**BRIEF COURSE DESCRIPTION:** This course offers an interdisciplinary approach to the study of the origin and evolution of life on Earth, the possibility of life beyond our planet, and the social and ethical implications of discovering extraterrestrial life. The course will focus on key scientific developments in biology, paleontology, chemistry, geology, and astronomy to help us understand the nature and possible distribution of habitable environments in the Universe. Along the way, we will learn scientific inquiry and use and practice critical thinking skills to gain new understanding of the dynamic nature of scientific discoveries.

Following the course textbook, the course is organized into four sections:

- Introducing life in the Universe
- Life on Earth
- Life in the Solar System
- Life Among the Stars

**COURSE SCHEDULE:** An approximate course schedule is provided on the last page of this syllabus. Circumstances may require minor changes in the schedule as the semester proceeds.

## DETAILED DESCRIPTION OF THE GRADED COURSE STRUCTURE

**1. Examinations (75% of grade):** There will be three “in-class” exams during the semester plus one *optional* cumulative exam (Exam 4) during the final-exam period. Each exam accounts for 25% of your course grade. If you choose to take all four exams, then only the three best scores will be used to compute your course grade. Note that each of the first-three exams covers a limited number of chapters, whereas the optional exam (Exam 4) given on December 13 during final-exam period is comprehensive (i.e., it covers all the course material).

The approximate dates of the first three exams are **Tuesday, September 26** (covering Chapters 1-4), **Tuesday, October 31** (Chapters 5-8), and **Tuesday, December 5** (Chapters 9-13). If for any reason an exam must be postponed or otherwise rescheduled, you will be notified at least a week prior to the original date. Any changes to exam dates will be announced during class and on Canvas. *Not knowing about an announced and posted schedule change or forgetting the exam date are not valid excuses for missing an exam, and make-ups will not be granted in such cases.* Make-up exams will only be granted for documented medical or family emergencies or for official UF-sanctioned activities (e.g., athletic participation). The UF-designated time and date for Exam 4, the optional comprehensive exam (covering all chapters, 1-13), are **3-5 pm, Wednesday, December 13**. If you skip Exam 4, your course grade will be based on Exams 1, 2, and 3. If you take Exam 4, your final grade will be based on the highest three test scores (lowest will be dropped). All exams will be in the regular classroom.

**2. Assignments (10% of grade):** There will be two homework assignments in this course. They will be posted on Canvas and discussed in class. Each assignment is worth 5% of your grade.

**3. Report (15% of grade):** A written report will be required for this course to support the GenEd learning objectives and outcomes. The topics, expected content, format, and deadlines of this report will be posted on Canvas and described in class.

**4. Grading:** A minimum grade of C is required for general education credit. See <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> for general UF grading policies. Your grade for the course will be based on the following:

3 Exams – (25% each)	<b>75%</b>
1 Report	<b>15%</b>
2 Assignments (5% each)	<b>10%</b>

### Grading Scale

Course Grading Scale		
Name	Range:	
A	100%	to 89.5%
A-	< 89.5%	to 86.5%
B+	< 86.5%	to 83.5%
B	< 83.5%	to 79.5%
B-	< 79.5%	to 76.5%
C+	< 76.5%	to 73.5%
C	< 73.5%	to 69.5%
C-	< 69.5%	to 63.5%
D+	< 63.5%	to 60.5%
D	< 60.5%	to 55.5%
D-	< 55.5%	to 51.5%
E	< 51.5%	to 0%

## ATTENDANCE, CLASS PARTICIPATION, AND CONDUCT POLICY

- Attendance at lectures is expected but not required.
- Students should arrive on time and not get ready to leave until the lecture is finished.
- Students are expected to not engage in any activity during class that is distracting to yourself or your fellow students or detrimental to your/their ability to learn. Therefore, use of laptops, tablets, and smartphones is not permitted during the lectures (except in cases of documented medical necessity), except as follows: **You may use your laptop only for note taking (not web-surfing or checking e-mail) and only if you sit in one of the first three rows of the classroom. Use of laptops is not permitted anywhere else in the classroom.** If this privilege is abused, then it may be revoked for the entire class during the semester.
- Please be courteous to the instructor and your classmates by silencing your mobile phone before the start of class, and by not texting during the class period.
- Students are expected to read the material in advance of the lectures and be ready to participate in class. Lecture slides presented in class will be made available in pdf format on Canvas at least a few days before the lecture. All key material presented in the lectures is also covered in the textbook, so it is recommended that you not try to copy or write down all the Powerpoint materials: just listen to the lecture and try to absorb the materials during the presentation. Ask questions.
- Students are encouraged to participate in class by asking questions and commenting on the lecture or related topics.
- Students may provide feedback about the course quality and content at any time in writing or in person directly to the instructor. In addition, students are expected to provide professional and respectful feedback on the quality of instruction 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/>.

## MAKE-UP POLICY

Students are expected to complete all requirements by the specified due dates. If a student misses class due to an excused absence as specified in the undergraduate catalog and provides the instructor with timely notification, they will be allowed a reasonable time to make up the missed work. The format of a make-up test/exam will be at the discretion of the instructor and may not be identical to that given in class at the formally scheduled time.

## ACADEMIC HONESTY POLICY

- This is an excerpt 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.”

- Cheating is not tolerated in this class. Everyone in this class is expected to follow the University of Florida Honor Code: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.* Any student caught cheating will be referred to the Honor Code Chancellor.
- On all work submitted for credit by students at the University, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

### ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

- Students who require a classroom accommodation for a disability are required to arrange accommodations with the Disability Resource Center.
- Students must first contact the Dean of Students Office of Disability Resources in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.dso.ufl.edu/drp/services/>.
- The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

### UF COUNSELING SERVICES

On-campus resources are available at the UF Counseling & Wellness Center (392-1575) for students experiencing personal or stress related problems.

### GENERAL EDUCATION (GenEd) COURSE DESCRIPTION

This is a GenEd physical science (P) course.

**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:

#### 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 report.

## CLASS SCHEDULE

43 total classes covering 13 chapters and 3 exams; 3 classes per chapter (average)

### AST 2037, Section 1875, #23190, Fall 2023: Life in the Universe Lecture Schedule & Reading

CLASS	DAY	DATE	TOPIC	READING
		<b>August</b>		<b>Chapter</b>
1/2	R	24	Course Overview, Universe of Life	1
3	T	29	Science of Life	2
4/5	R	31		
		<b>September</b>		
6	T	5	Universal Context of Life	3
7/8	R	7		
9	T	12	Habitability of Earth	4
10/11	R	14		
12	T	19		
13/14	R	21	Nature of Life on Earth	5
15	T	26	<b>EXAM 1 (Chapters 1-4)</b>	
16/17	R	28		
		<b>October</b>		
18	T	3		
19/20	R	5	Origin & Evolution of Life on Earth	6
21	T	10		
22/23	R	12	Searching for Life in Our Solar System	7
24	T	17		
25/26	R	19	Mars	8
27	T	24		
28/29	R	26	Life on Jovian Moons	9
30	T	31	<b>EXAM 2 (Chapters 5-8)</b>	
		<b>November</b>		
31/32	R	2		
33	T	7	Nature & Evolution of Habitability	10
34/35	R	9		
36	T	14	Exoplanets	11
37/38	R	16		
39	T	21	Search for Extraterrestrial Intelligence	12
--	R	23	HOLIDAY	
40	T	28		
41/42	R	30	Interstellar Travel & Fermi Paradox	13
		<b>December</b>		
43	T	5	<b>EXAM 3 (Chapters 9-13)</b>	
			<b>NOTE: Test 1 &amp; 2 dates may change (<math>\pm 1</math> class)</b>	
			<b>Optional EXAM 4: (Chapters 1-13) December 13, 3:00-5:00pm</b>	