MCB 5705 ASTROBIOLOGY

Academic Term: Spring, 2026
Course Format: Asynchronous
Credits: 3

Instructor:

Jamie Foster, Ph.D.
Off-campus: Space Life Sciences Lab, Merritt Island, FL, Room 204
Tel: 321-525-1047; jfoster@ufl.edu
Zoom office hours by appointment: https://ufl.zoom.us/my/jamiefoster

Course Description: Astrobiology examines the origin, evolution, and future of life in our solar system. Topics will include planet and star formation, biosphere formation, evolutionary processes, biogeochemistry, microbial adaptation to extreme environments, planetary habitability, and microbiology on the International Space Station.

Course Learning Objectives:

By the end of this course, students should be able to:
1) Describe and articulate the fundamental concepts of astrobiology
2) Analyze primary literature in astrobiology to improve and/or develop critical thinking skills in science
3) Develop essential professional communication skills targeted to the field of astrobiology

Course Prerequisites: Since astrobiology is a multidisciplinary field incorporating microbiology, astronomy, chemistry, physics, and geology, students should have taken at least one introductory science class in any of the previously mentioned fields before taking Astrobiology.

Textbooks:

1. Life in the Universe, Jeffrey Bennett and Seth Shostak, 5th edition
Link to Amazon, where you can rent or purchase

Technical Support:

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week.
https://helpdesk.ufl.edu/; 352-392-4357

Weekly Course Schedule:

See Canvas Course page for up-to-date due dates and lecture topics.
Module 1: Cosmic and Planetological Origins of Life
Module 2: Origins of Life
Module 3: Co-Evolution of Life and the Environment
Module 4: Space Science Communication
Module 5: Evolution & Microbial Diversity
Module 6: Microbial Physiology and Lithopanspermia
Module 7: Extremophiles
Module 8: Search for Life in the Universe – Part 1
Module 9: Search for Life in the Universe – Part 2
Module 10: Space Biology and the Future of Life

Grading Policy

Course grading is consistent with UF grading policies.

Course Grading Structure (1000 points total):

Watching Lectures (*10% of your final grade; 100 points*) - Lectures will be available online, and you will receive points for watching the lectures in their entirety through PlayPosit. An algorithm will be used to monitor how much of the lecture you watched, and for some lectures, that may include interactive quizzes that will help reinforce major concepts within each lecture. Grading of this part of the course will be automated and based solely on watching and interacting with the video.

Weekly quizzes *(10% of your final grade; 100 points)* – There will be a course orientation quiz that will cover aspects of how the course will work. If you watch the course introduction video and read the syllabus you should be able to ace the quiz. For each learning module there will be a quiz that needs to be completed online. The quizzes will include all material covered that week including podcasts and designed to reinforce key concepts of the weeks learning materials. The quizzes will be untimed and open book.

Group Discussions (*10% of your final grade; 100 points*) - There will be two group discussions over the course of the semester (50 points each) using the learning tool Perusall. The group will read a paper related to the course content. You will receive points for opening (10%), reading the entire paper (10%) and being actively engaged with other students (20%). Most of your score (60%) will be based on the quantity and quality of your posts on the document. The quality of the posts will also be considered, and emphasis will be given for analytical posts (e.g., are you evaluating strengths and weaknesses of the paper?).

Multiple Choice Exams (60*% of your final grade; 600 points*) - These exams will allow you to demonstrate your familiarity with the concepts, terminology, and methodologies covered in the course. Each exam will be worth 200 points and given online using Honorlock. Exams are NOT open book but you will be allowed to have two pieces of paper with anything you want written on those pieces of paper.

STEAM - Astrobiology Communication and Art Project *(10% of your final grade; 100 points)* This assignment builds off the idea that there is a fundamental link between art and science: creativity and communicating ideas. Additionally, I think there is a growing public distrust of science, and I think as science ambassadors, we must continually work on improving our abilities to communicate the scientific world to the average layman. Therefore, the overall objective of this assignment is for you to work on your communication skills and foster your creativity to think of new ways to communicate complex science to the public. **Your assignment** will be to pick a topic in Astrobiology and generate some form of presentation of that material, in which someone with a non-science background could learn and understand. This can be any format: rap video, podcast, interview with a researcher, dance, animation, comic book (I have seen them all). The assignment must be interactive and engaging with the audience.

Grading Scale

The course will be evaluated on a straight scale.

Grade Points	***Grade***
930.0 - 1000	A
900.0 - 929.9	A-
870.0 - 899.9	B+
830.0 - 869.9	B
800.0 - 829.9	B-

Grade Points	*Grade*
770.0 - 799.9	C+
730.0 - 769.9	C
700.0 - 729.9	C-
670.0 - 699.9	D+
630.0 - 669.9	D
600.0 - 629.9	D-
< 60.0	E

Academic Policies and Resources: Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

Campus Health and Wellness Resources: Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF. Please contact UMatterWeCare for additional and immediate support.

Unforseen Life Events: For ALL matters that require special consideration, please contact UMatter, We Care in the Office of the Dean of Students (https://care.dso.ufl.edu/instructor-notifications/). They will verify your case and contact me with advice on how to deal with your specific situation. I would like to note that a letter or e-mail from them does not guarantee special consideration and deadline extension; it is merely a suggestion on how best to deal with your case. I will make the final decision based on their recommendation after reviewing your case.

Software Use: All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Privacy and Accessibility Policies:

- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility

Additional Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Library Support, Various ways to receive assistance with respect to using the libraries or finding resources.
Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

Writing Studio, 302 Tigert Hall, 846-1138. Help with brainstorming, formatting, and writing papers.