ASTR 18000 1 (Autumn 2020) The Search for Extraterrestrial Life

COVID-19 related absences and extensions

This remains an uncertain time for all of us. If you are impacted by events related to the COVID-19 pandemic, please reach out to me. I may be able to connect you to university resources, and the more you communicate with me to keep me updated, the easier it is for me to be flexible about course policies. We will all need to continue to adapt, and we are all in this together.

Basic Information

Instructor: Prof. Jacob Bean

Lectures: MW 1:50 – 3:10

All lectures will be recorded and posted immediately following class. Lecture slides will be posted by class time.

Honor Code: During this continuing experiment with online learning you should maintain an awareness of the College's expectations for academic integrity.

Specifically, students should do the exams on their own with no communication with anyone else except the instructor. Group work is encouraged for the in-class math problems. Students should do the quizzes on their own afterwards.

Learning Objectives

- Appreciate the motivation for the study of astrobiology;
- Learn fundamental facts about this field and understand how we know these things;
- Gain practice applying math and physics to learn about the physical world;
- Develop an ability to evaluate the strengths and weaknesses of arguments based on the use of data, technical claims, and scientific theories encountered in the media.

Nota Bene

This class should ideally not be taken in conjunction with PHSC 12720 (Exoplanets).

Textbook

Required: “Life in the Universe” by Bennett & Shostak, ISBN-13: 978-0134089089. 4th edition highly preferred. This is an expensive book but we will be following it closely because it is perfect for the class.

Course Components

There will be two **exams** for the class: one midterm and a comprehensive final. These will both be done on Canvas. The exams will be timed (mid-term: 85 minutes, final: 125 minutes) and you will have a 24hr window to take them. The exams will have a mix of question types, including quantitative problems. Both exams are mandatory and count toward your final grade.

There will be online **quizzes** due within 48hrs of each class. The quizzes will be a combination of multiple choice type questions and quantitative math problems. You will work on the math problems in class with your peers beforehand. The lowest quiz score will be dropped.

There will be two **term papers** due during the quarter. These should be 5-7 pages (1.5 spacing) and include citations. These are already available and you are welcome to do them early.

Grading

Quality grades will be assigned post-facto based on the cumulative score. Regardless of the class performance, a 92% cumulative score guarantees an A-, 84% a B-, 76% a C-, and 68% a D. For students taking the class P/F, a 68% will be required to pass. The grades will only be curved up, if at all, and not down.

Late Work

All work must be completed by the assigned deadline. Late work will be assigned a 10% penalty per day it is late. The reason this is necessary is so that the correct answers to the assignments can be posted promptly.

Office Hours

I will hold office hours on Mondays 4-5pm (Chicago time) in the class zoom. I realize that there are a variety of reasons why this time won't work for everyone. **Students are**

always welcome to contact me to set up an appointment to meet outside of these regular hours. I am very interested in everyone being successful in this class!

Origins of Life Seminar Series

By random chance, the University is hosting a seminar series this quarter on the origins of life. I encourage you to check out these talks by world-leading scientists on topics related to this course. Link to the scheduleLinks to an external site.

Schedule

Week 1, W Introduction, Chapter 1 - lecture01.pdf download

Week 2, M Chapter 2 - lecture02.pdf download

Week 2, W Chapter 3, Sections 1-3 - lecture03.pdf download

Week 3, M Chapter 4, Sections 1-3 - lecture04.pdf download

Week 3, W Chapter 4, Sections 4-6 - pre-recorded - lecture05.pdf download

Week 4, M Chapter 5- lecture06.pdf download

Week 4, W Chapter 6 - lecture07.pdf download

Week 5, M Exam

Week 5, W Chapter 3, Sections 4-5; Chapter 7 - lecture08.pdf download

Week 6, M Chapter 8 - lecture09.pdf download

Week 6, W Chapter 9 - lecture10.pdf download

Week 7, M Chapter 10 - lecture11.pdf download

Week 7, W Chapter 11 - lecture12.pdf download

Week 8, M Chapter 11, continued - lecture13.pdf download

Week 8, W Chapter 11, continued - lecture14.pdf download

Week 9 No class for Thanksgiving break

Week 10, M Chapter 12 - lecture15.pdf download

Week 10, W Chapter 13 - lecture16.pdf download

Friday, Dec 11 Final Exam