

PTYS 214 -- Fall 2019

Astrobiology: A Planetary Perspective

Space Sciences Building, Rm 330
Tue-Th 2:00p -- 3:15p

Instructor: Joe Spitale
Office hours: T Th 2:30-3:30
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If you need to arrange a time to meet outside of my office hours, please contact me an appointment.

Course description

Astrobiology is the study of life in a universal context. By necessity, this field involves nearly every physical science. In this class, we will examine the following three fundamental questions:

1. What is life?
2. How does life begin and evolve?
3. Does life exist elsewhere in the universe?

Before we can explore those questions, we must review the chemical basis of life (as we know it), the means by which more complex organic molecules are formed, and the various sources of energy available to living systems. Next we will look at the history of our own planet, and evaluate theories of the origin and evolution of life here. We will then extrapolate our knowledge of our single example of a biosphere to hypothesize as to what types of life might be found elsewhere and where it may reside. Finally, we will review various approaches for detecting life in the Solar System, and beyond.

Text Book

Because of the rapid rate of change in this field, textbooks rapidly become outdated. Therefore, no textbook is assigned for this course. Grading will be based on the material covered in the lectures.

Homework

Homework will be assigned for each lecture, but it will not be graded. Instead, hints will be provided, where appropriate, and you will be encouraged to work with other students, and with the instructor (and TA if provided) to make sure that you understand the reasoning behind those answers. Your incentive for doing your homework will be that the midterm exams will be derived *heavily* from the homework problems.

Mid-term Exams

There will be five mid-term exams. In computing your overall mid-term exam grade, only the two highest mid-term exams will be considered. However, the average of *all five* mid-term exam scores will replace your final exam score if it is higher.

Final Exam

UA final exam policies and schedule are here:

<https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information?audience=students&cat1=10&cat2=31>

<http://www.registrar.arizona.edu/schedules/finals.htm>

The final exam for this class will be on Monday 12/16 from 3:30 to 5:30 in room SS 330. It will be similar in format to the midterm exams, but it will be proportionally longer and it will be comprehensive.

Writing Assignment

All Tier One and Tier Two General Education Courses are writing intensive. To fulfill that requirement, all exam questions will be in essay format, and there will be a review of a timely and relevant article. There will be an opportunity to turn in the assignment early to receive feedback that can be used to revise your work and improve your grade. The score on this assignment will replace your final exam grade if it is higher.

Observing Project

An optional telescope observing project will be available as an alternative to the writing assignment. The observing project will involve observing the Moon throughout its orbit about the Earth and writing an essay relating your observations to the material in the class. As with the writing assignment, there will be an opportunity to turn in the project early to receive feedback that can be used to revise your work, and the score on this project will replace your final exam grade if it is higher.

Grades

Grading will be weighted as follows:

Overall midterm grade (average of top two):	50%
Final exam (greater of final exam, midterm average, writing assignment, observing project):	50%

Final grades may be curved, but you are guaranteed the following minimum final letter grades, based on your final average:

- A: >90%
- B: 80 - 90%
- C: 70 - 80%

D: 60 - 70%

E: < 60%

Extra Credit

Activities resulting in extra credit may be assigned during the semester. The total available extra credit will not exceed 10% of the overall class grade, though there may be none at all.

Makeup/Special Exams

As three of the five midterm exams will be dropped and there are a variety of options for replacing your final exam, there is no reasonable justification for requesting a makeup exam. Therefore, makeup work will only be allowed in University-mandated circumstances. Makeup exams will be different than standard exams, and will be more advanced in order to compensate for the extra study time and assumed knowledge of the content of the standard exam. Makeup exams may be oral. Makeup exams will be scheduled based on the instructor's availability.

Late writing assignments

Writing assignments are due *any time* before the deadline, so there is no justification for requesting an extension.

Classroom Behavior

Academic integrity: Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See:

<http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

Primary things you need to be aware of are:

1. Cheating is not tolerated in any form. If a student is caught cheating on an exam, the penalty will be failure in the course and a letter will be set to the Dean of Students describing the incident. If you are aware that someone else is cheating, it is your obligation to inform the instructor.
2. Note that because homework is not graded, it is not possible to cheat on the homework. We encourage collaboration on all homework assignments.

Threatening behavior: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See:

<http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Nondiscrimination and Anti-harassment: The University is committed to creating and maintaining an environment free of discrimination; see:

<http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Attendance: Attendance is not mandatory, but it is strongly advised. Your attendance will likely be reflected in your exams scores. The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at:

<http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable:

<https://policy.arizona.edu/human-resources/religious-accommodation-policy>

Absences pre-approved by the UA Dean of Students (or dean's designee) will be honored. See:

<https://deanofstudents.arizona.edu/absences>

Disruptive behavior: Be considerate. If you are not sure whether your behavior is disruptive, then you can assume that it is. Turn off the ringer on your cellphone and do not talk on you phone during class. Students may come and go as needed (except during exams; see below), as long as they are careful to not be disruptive. If you arrive late to class, do not attempt to step over other students; simply choose a seat near the outside of the row. Likewise, if you know that you will need to leave early, sit at the outside of a row so that you will not have to step over other students when you leave. This policy may be tightened at any time if the instructor feels that it is being abused.

Note that during an exam, no student may re-enter the classroom after leaving, *for any reason*, until the class is dismissed.

Any student found to be disruptive during a class may be asked to leave.

Food/drink: The Lunar and Planetary Laboratory does not permit food or drink other than bottled water in the classroom, Space Sciences 308. If you find a problem with a seat or its writing table, please let us know so that the problem can be addressed as soon as possible.

Study Room

Space Sciences Room 330 is dedicated for general use by students and TAs. The room is open to students Monday through Friday from 8:00am through 5:00pm, though there may be times when the room will be used for a class, and will be unavailable for a limited amount of time. Besides work/study tables, the room includes several Macintosh and PC computers connected to the internet, and one printer. Students are encouraged to take advantage of this facility. However, keep in mind that these computers are shared among all of the undergraduate students, so if you use them make sure to take your work with you when you leave. The Planetary Sciences Department is not responsible for any file left by a student on the computers in SS 330.

Class Web Page

The web page for the class is at:

https://www.lpl.arizona.edu/classes/Spitale_214/

Check this page for the syllabus, schedule, announcements, instructor/TA contact info, lecture slides, homework assignments, and so on.

Students with Disabilities

If you anticipate barriers related to the format or requirements of this course, please meet with the instructor to discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; <http://drc.arizona.edu>) *and notify the instructor* of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Honors Credit

As this is a Tier Two course it is available for Honors credit. Honors contract information is available at:

<https://honors.arizona.edu/honors-contracts>

See the instructor to discuss your ideas for an honors contract.

Syllabus Changes

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

TurnItIn.com

If you decide to take and continue in this course, you are agreeing to submit your papers on-line, when so instructed, to a plagiarism-prevention program called TurnItIn.com. When you set up your individual account with TurnItIn.com for this class, make sure you understand and consent to all the terms that the program provides you at that point. You should note that TurnItIn.com – always without your name and any personal information – will retain your paper as part of their database so that students who plagiarize from it can be detected. Because of this program, the vast majority of you who do your own work and cite your sources of information properly will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problems with TurnItIn.com may talk privately about these with the instructor.