

ASTR-, GEOS-, PTYS-214 — Fall 2018

Astrobiology: A Planetary Perspective

Tuesday and Thursday 11am – 12.15 pm
Space Sciences 330

Instructor: **Dr. Ilaria Pascucci**
Office: Space Sciences 530
Hours: Tue and Thu 1-2pm
Email: pascucci@lpl.arizona.edu

Teaching Assistant: **Nathan Hendler**
Office: Space Sciences 330
Hours: Mo and Wed 3-4pm
Email: equant@email.arizona.edu

Course Web Page: D2L.arizona.edu

Course Description

Astrobiology is the study of the origin, evolution, distribution, and future of life in the Universe. This interdisciplinary field of science addresses four fundamental questions that have been asked in various ways for generations:

How does life begin and evolve?
What environments can sustain life?
Does life exist elsewhere in the Universe?
What is the future of life on Earth and beyond?

In this course we will use concepts from astronomy (e.g., celestial mechanics), biology (e.g., DNA, RNA), physics (e.g., electromagnetic radiation), chemistry (e.g., organic molecules) and geology (e.g., rocks/minerals) to explore these questions scientifically.

Welcome to one of the most exciting adventures in science!

Suggested Text Book: There is no required textbook for this class. The following book is recommended: **Life in the Universe** by Bennett and Shostak, 3rd edition, Addison-Wesley

Miscellaneous: There may be reading material provided for the class when needed. Examinations, quizzes, activities, and homework are based on material covered in the lectures. Copies of the lectures will be available on the Web, at the class web page on D2L (you will need your NeTID to login).

Structure You will be an active participant in this class. We will have multiple choice quizzes during the lecture, always bring a copy of the ABCD colored card posted on the D2L website. Each week we will cover a particular broad topic. Tuesday will be generally devoted to lectures with breaks for demonstrations, quizzes, and discussion. Most Thursdays we will have a group activity. For these activities, the class will split in groups of 3-4, as a group you will fill in a worksheet and get a 'group grade' (same score for each person in the group). You will also have 'individual' homework associated to lectures and activities. Graded quizzes will be also given through the semester.

Grades will be based on four components weighted as follows:

- 30% Average of one Midterm and one Final exam
- 20% Average of group Activities
- 30% Average of homework assignments
- 20% Average of quizzes

There will be about 5 group Activities, 6 homework assignments, and 6 quizzes over the semester. The Midterm will be in Week7. At least two group Activities, two homework assignments, and three quizzes will be also completed by Week 8 thus ensuring that 40% of the final grade is determined by the end of Week 8.

This course uses absolute grading so there is no competition with other students. If your final percentage falls within the following ranges, you are guaranteed at least the corresponding letter grade

A:87.5-100%; B: 75-87.5%; C: 62.5-75%; D: 50-62.5%; E<50%

Exams

There will be a total of two exams. One midterm exam will be given during a regularly scheduled class period. **The final exam will be given at the time established by the University.** The date of the final exam is set by the University and cannot be changed. Exams will be cumulative but focused on the more recent material covered in class. They will consist of a combination of

multiple choice questions and short essays. Exams will be closed book, closed notes, unless otherwise specified.

Makeup Exam

A makeup exam for the midterm will be allowed only for the following reasons:

- 1) University approved activity (dean's approval required);
- 2) Religious holidays (you must provide information on the holiday);
- 3) Medical emergency, for which you can provide a doctor's note;
- 4) Jury duty.

Makeup exams must be taken within 2 weeks of the exam date.

No makeup exam is allowed for the final examination, which is officially determined by the University.

Quizzes

Quizzes will be given randomly throughout the semester. They will consist of a few multiple choice or true/false questions based on material from a recent lecture and should be very easy for students who attend class regularly and pay attention to the lectures. You can drop up to two quizzes from the final grade. There will be no make-up quizzes.

Homework

Homework assignments will be announced in class and will be posted on the d2l website after the class. The assignments must be submitted to the d2l website (in a pdf format) by the due date as indicated in the first page of the homework. Homeworks are typically graded on a 10-point scale. Late homeworks that are turned in the day after the due date will receive a 25% penalty while homeworks submitted later will receive a 50% penalty. Any homework submitted later than the first class after the due date will not be accepted. You can drop up to two homework grades from the final grade. You are strongly encouraged to work together but the **work that you submit MUST be your own.**

Two of the homework assignments will consist of reading a scientific article, distill the relevant results, and summarize them in a 5-page paper. The paper will also discuss how the findings presented in the scientific article relate to material covered in class. For the first of these homework assignments students will receive feedbacks on their writing before submitting the paper for a grade.

Honors Students This course offers Honors Contracts for students belonging to the University of Arizona Honors College. As part of the Contract students will carry out a semester-long research project and summarize their results in a 5 to 10 page research paper. The project will be substantially different from the regular course work and require a more in depth understanding of astrobiology. Dr. Pascucci will meet with Honors students at the beginning of the semester to discuss possible research projects. She will also meet them on a regular basis, about once a month, to discuss progress on their honors work. If you are interested to take this class to receive Honors credits, please contact Dr. Pascucci at the beginning of the semester.

Errors in grading. If you spot an error in grading you must call it to the attention of the TAs or instructor within one week. An effort will be made to hand back material in a timely manner. Make sure to review all your handed-back material as soon as possible. Note that you can only discover an error in grading if you pick up your graded material and review it!

Subject to Change Statement. 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.

Classroom Behavior – READ CAREFULLY!

Academic Integrity: It is strongly recommended that all students read the University of Arizona's Code of Academic Integrity. Details can be found at <http://deanofstudents.arizona.edu/codeofacademicintegrity>. All students in this course are expected to abide by this code, which will be strictly enforced. Primary things you need to be aware of are:

- ***Cheating is not tolerated in any form.*** If a student is caught cheating on an exam, the penalty will be failure in the course. You will be given “0 pt” for cheating on quizzes. ***In all cases a letter will be sent 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.

- ***We allow, even encourage, collaboration on most assignments.*** However, you must always write the final version of an assignment yourself, and use your own words to describe what you have concluded. If we receive verbatim answers from more than one person we will divide the credit received among all those with identical answers. This holds for math as well as text.

- It is fine to make use of reference books or web sites. This is indeed what you must do in certain assignments. But if you do so ***make sure to put in quotes what is taken verbatim from a different source***, otherwise make sure to rewrite things in your own words, and ***list the source of your information***. Plagiarism is strictly prohibited. If you are uncertain as to what constitutes plagiarism see:

<http://deanofstudents.arizona.edu/codeofacademicintegrity>.

Note that we will be using the software Turnitin within d2l to automatically check all assignments for plagiarism.

UA Nondiscrimination and Anti-harassment Policy: The University is committed to creating and maintaining an environment free of discrimination: <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Threatening Behavior: Check <http://policy.arizona.edu/threatening-behavior-students>

Late Arrival – Early Departure: Late arrivals and early departures can be very disruptive for the class. They can be accepted as an exception, but if for whatever reason a student needs to do so on a regular basis, he/she should contact the instructor ahead of time, and try to sit near the exit doors. Repeated cases of unjustified late arrival or early departure will be considered poor class participation (student will be asked to show his/her ID) and affect the overall grade in the class. Leaving early may result in missing a quiz.

Attendance: Regular attendance is essential to doing well in this class. Although there is a book for the class, you are expected to take notes. Furthermore, there will be several in-class quizzes that will contribute to your grade. 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: <http://policy.arizona.edu/human-resources/religious-accommodation-policy>. Absences pre-approved by the UA Dean of Students (or dean's designee) will be honored <http://policy.arizona.edu/employmenthuman-resources/attendance>.

Cell Phones and Laptops: The use of cell phones is not allowed inside the class and it is strongly suggested that they are turned off before getting to class. If you accidentally forget to turn your cell phone off, I expect that if the cell phone rings you will turn it off immediately.

Talking on the phone during class is not allowed; it is disrespectful to the teaching team as well as to your fellow classmates. Failing to observe this rule will be considered poor class participation (student will be asked to show his/her ID to the instructor or TA) and affect the overall grade in the class. Phone usage is strictly forbidden during exams. Taking notes on a laptop is allowed. However, those using laptops will have to sit in the front rows.

No Food/Drinks: The Lunar & Planetary Laboratory does not allow food and drinks other than bottled water in the classroom, Space Science Room 308. Also, 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 Science 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. Besides work/study tables, the room includes several Macintosh and PC computers connected to the internet, and 1 printer. Students are encouraged to take advantage of this facility. However, keep in mind that these computers are shared among all 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 students in the computers of SS-330. There may be times when the room will be used for a laboratory-type class, and will be unavailable for a limited amount of time.

Students with Disabilities

If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can 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; drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.