

G345U: Life in the Universe

Fall 2010

CRN 11453 Lecture – MW 7:45-8:50 am CH 53

CRN 11452 Lab – F 8:00-9:50 am NH 450

Instructor: Melinda Hutson

E-mail: mhutson@pdx.edu (please put G345U in the subject line)

Course web site: <http://web.pdx.edu/~mhutson/345U/>

Course Description: Focuses on issues surrounding the origin and evolution of life on Earth, the environmental conditions for life elsewhere, and the potential for life on other planets and satellites in our solar system. Additional topics include the discovery, occurrence and habitability of extrasolar planets, and the philosophical and societal implications of searching beyond Earth.

Prerequisite: Upper division standing

There is no text for this course. The current text books appropriate for this course are seriously out of date. I do not post my powerpoints.

Class policies:

Notes: Groups of two or three students will sign up to cover each lecture's worth of notes. Detailed notes will be turned in to the instructor as a properly referenced, illustrated pdf, which will be posted on the class web site.

Presentations: Groups of three to five students will choose one of several topics on Mars (to be discussed in class) and will create properly referenced powerpoint presentations to be given in week 8. These presentations will be posted on the class web site.

Exams: The midterm and final exam questions will be taken primarily from the class lectures, but may include material covered only in lab. Exams are closed book/notes. In order to make up a missed exam for full credit, you will need to have a valid written excuse for your absence. Valid reasons for missing an exam include a documentable illness or injury (doctor's note required) of yourself or your child, or a death in your immediate family. Invalid reasons include a variety of things such as oversleeping, missing the bus, car difficulties, and needing to leave early for your summer vacation. Make-up exams for students without a valid excuse will **lose 10%** of the exam's full credit.

Lab exercises: Lab exercises are done in class and in a group (with other students). As it is disruptive to a group to have someone added on in the middle of class, students must be on time for lab. Students more than 15 minutes late

may not be allowed to do that day's lab, or may lose part of the credit for that lab. There are no make-ups for missed labs (for any reason).

Grades: Grading is based on a percentage out of 100% of the possible course total: 93-100 = A; 90-92.99 = A-; 87-89.99 = B+; 83-86.99 = B; 80-82.99 = B-; 77-79.99 = C+; 73-76.99 = C; 70-72.99 = C-; 67-69.99 = D+; 63-66.99 = D; 60-62.99 = D-; below 60 = F.

Midterm exam	20%
Final exam	25%
Presentation	20%
Notes	10%
Lab	25%

Attendance: I will not be checking attendance. However, there may be announcements or material covered in lecture that cannot be easily obtained without attending class. It is the student's responsibility to be aware of any of these announcements.

Course web site: A course web site will contain a copy of the syllabus, information about some of the labs, helpful web links, announcements about changes to the course, and study guides for the exams. That address is <http://web.pdx.edu/~mhutson/345U/>

E-mail Policy: Because I get a huge volume of unwanted e-mails, I delete many without opening them. If you want to reach me by e-mail, please indicate G457U in the subject line of your message. Also, **I do NOT open attachments**. There are two reasons for this: 1) I've picked up unwanted worms/viruses that way, and 2) I can't always open the attachments.

Academic Integrity: It is expected that work submitted by students represents that done by the students themselves. Work copied from others in the class will result in zeroes for the assignment involved. Students should also avoid plagiarism. Plagiarism is presenting someone else's work as your own, even accidentally. Students can avoid plagiarism by making sure that they acknowledge words or ideas that come from other sources-such as direct quotes (and you should limit your use of these), paraphrases, statistics or illustrations. All of these must be properly referenced.

Accommodations: If you have a disability and need an accommodation, please make arrangements to meet with me outside of class. PSU students requesting accommodations must provide documentation of disability and work with the Disability Services for Students (DSS) office (503-725-4150).

Course Goals: This is an introductory survey to the field of astrobiology. By the end of this course, it is my hope that students will understand the interdisciplinary

nature of the subject, which requires at least a cursory knowledge of astronomy, geology, chemistry, physics, and biology in order to understand recent advances in the field. Students should gain an understanding of the uniqueness of our planet and the probability of finding life elsewhere in the universe.

Tentative course schedule

	Monday CH 53	Wednesday CH 53	Friday NH 450
Week 1	Introduction, survey of solar system	Continue solar system, Light and Spectrum	Introduction to lab How to take notes
Week 2	Big Bang, Stellar Lifecycles, Nucleosynthesis	Continue Big Bang, Stellar Lifecycles, Nucleosynthesis	Stellar Lifecycles
Week 3	Model for forming our Solar System and comparison to terrestrial planets	Habitable Zone – what makes a habitable planet	Plate Tectonics and hot spots
Week 4	Detecting Exoplanets	Detecting Exoplanets	Origin and Evolution of Life
Week 5	Midterm Exam	Extremeophiles	<i>Meteorite Lab?</i>
Week 6	Mars	Mars	Mars
Week 7	Mars	Mars	Mars
Week 8	Presentations	Presentations	Presentations
Week 9	Galilean Satellites	Titan	Nov 26 – Thanksgiving holiday – no class
Week 10	Fermi Paradox and SETI program	SETI program	Drake Equation
Finals week	Final 8:00-9:50 in CH 53	Class over – no class	Class over – no class