ASTRONOMY 475/575 – Planetary Astrobiology
Spring 2016

Class meets: T/Th 11:00 am - 12:15 pm
Classroom: Steward Observatory Room 202

Instructors: Dr. Daniel Apai, Dr. Josh Eisner
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Office Hrs: By appointment or whenever the door is open

Course Desciption

This course will explore the processes related to planet formation, the properties of planets and the planetary conditions required for the emergence of life. We will study the formation of our Solar System and exoplanetary systems, the distribution and properties of exoplanets, and the potential habitability of other planets/moons in our system or extrasolar systems. The course will also review science cases and possible future astrobiology studies, both *in situ* and via remote sensing, of astrobiologically relevant environments. Toward the end of the semester a few guest lectures will highlight particularly exciting and timely topics.

Textbook

There is no required book for this course. For those who would like some additional reading material, we reommend "Planetary Science" by Lissauer and de Pater, and "Earth" by Lunine. Copies should be available in the campus bookstore. Some topics are beyond the scope of these books, and we will draw from journal articles and other sources in these cases.

Lectures

The classes will be devoted to lectures. Professor Eisner will lecture for the first 6 weeks or so, and then Professor Apai will lecture for about 6 weeks. Toward the end of the semester, both professors and guest lecturers will highlight particularly interesting or timely astrobiology topics. The final lecture(s) will be devoted to student group presentations of astrobiology mission concepts.

Homework and Classwork

There will be approximately six homework assignments during the semester, which will consist of problems that should be completed individually. Some assignments will contain one or more advanced questions for graduate students only. All assignments will be due *at the beginning of class on Tuesdays*. At the end of the semester students will form small groups and collaboratively develop

concepts/proposals for competing astrobiology missions. These concepts will be described and debated in class toward the end of the semester.

Exams

There will be a final exam. This exam will cover material discussed in lecture as well as in the homework.

Grading

The grades will be computed as follows:

Homework	40%
Mission Concept Debate	30%
Final Exam	30%

Grades may be adjusted to reflect overall class performance.

Academic Integrity

The University of Arizona's Code of Academic Integrity can be viewed at http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity
Consequences of academic dishonesty can range from loss of credit on an exam or assignment to expulsion from the university, depending on the severity of the offense.

Students with Disabilities

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

Topic Schedule and Corresponding Reading

A preliminary plan for the to be discussed is included on the course website.

Course Website

http://astrobiology.arizona.edu/Education/ASTR475