

ASTRONOMY 111
Introduction to Astrobiology
Spring Quarter 2009

INSTRUCTOR: Dave Meyer
OFFICE: Dearborn Observatory #6 (491-4516)
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OFFICE HOURS: MWF 12:30 - 1:30 PM

TA: Tristan Matthews
OFFICE: Dearborn Observatory #5 (491-4661)
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OFFICE HOURS: W 5 - 7 PM

LECTURES: MWF at 2:00 – 2:50 PM in Tech LR2
TEXTBOOK: *Life in the Universe (2nd edition)* (Bennett & Shostak)
MID-TERM EXAM: Monday, May 4, 2009 2 PM Tech LR2 (1 hour)
PAPER DUE: Friday, May 22, 2009 2 PM Tech LR2
FINAL EXAM: Monday, June 8, 2009 9 AM Tech LR2 (2 hours)

Grading Policy

The course grade will be based on the final (45%) and mid-term (25%) exams, the paper (20%), and two “pop” quizzes (10%). The pop quizzes will be given without warning twice in lecture during the quarter. There will be no make-up quizzes. Since only the highest quiz grade will be counted, missing one will not hurt your grade. The exams will consist of multiple choice, short answer, and essay questions. The instructor will schedule review sessions before each exam. In the case of missed exams, make-ups will only be considered under the direst of circumstances and will consist of an oral test.

The Paper

In this course, we will discuss exciting new developments in astrobiology. The public obtains this information through newspaper and magazine articles. As an Astro 111 student, you will be in a position to make informed judgments as to the accuracy and reliability of such articles. Your assignment is to find a recent (within the past 6 months) article reporting a new astrobiology discovery in a reputable (no tabloids!) publication and critique it. The article you choose should be longer than several paragraphs. In your paper, you will provide some background on the astrobiology covered in the article, discuss the importance of this new development, and most importantly, evaluate the accuracy and reliability of the article based on what you have learned in this course. Papers that exhibit the most original thinking and creativity in expression will be viewed most favorably. The finished product should be 4 to 6 double-spaced typewritten pages long and include a xerox copy of the article reviewed. No papers will be accepted after the deadline on May 22 at 2 PM.

Observing Sessions

There will be evening observing sessions every Wednesday night throughout the quarter utilizing the historic 18.5-inch telescope in the Dearborn Observatory. If the weather cooperates, you will have an opportunity to view the Moon, planets, nebulae, etc. If not, the TA on duty will give you an entertaining tour of Dearborn. Either way, you will be exposed to a view of the universe not easily discussed in a lecture setting. Attending at least one of these sessions during the quarter is strongly encouraged and will be of help on the final exam. Since we can accommodate only a limited number of students per session, a prior sign-up will be in effect after lecture each Wednesday for that night's observing. **DON'T WAIT UNTIL THE END OF THE QUARTER.** The instructor will inform you where and when to meet for the sessions.

Course Outline

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|------------------------|---|
| 3/30 | <i>Introductions</i> (Read pp. 2-12) |
| 4/1, 3 | <i>How Big is the Universe?</i> (Read pp. 49-80) |
| 4/6, 8, 10 | <i>What is Life?</i> (Read pp. 149-185, 198-206, 236-241) |
| 4/13 | <i>The Habitable Zone</i> (Read pp. 132-136, 329-354) |
| 4/15, 17, 20 | <i>The Origin and Evolution of Life on Earth</i> (Read pp. 113-120, 136-138, 191-197, 206-225) |
| 4/22, 24, 27 | <i>Life on Mars?</i> (Read pp. 261-290) |
| 4/29, 5/1 | <i>The Europa Conjecture</i> (Read pp. 296-319) |
| Review Session: | Thursday, April 30, 2009 at 7 PM in Tech LR2 |
| Mid-Term Exam: | Monday, May 4, 2009 at 2 PM in Tech LR2 |
| 5/6, 8, 11, 13 | <i>The Search for Extrasolar Planets</i> (Read pp. 360-380) |
| 5/15, 18 | <i>Life on Extrasolar Planets?</i> (Read pp. 380-388) |
| 5/20, 22, 27, 29 | <i>The Search for Intelligent Extraterrestrial Life</i> (Read pp. 399-432) |
| Paper Due: | Friday, May 22, 2009 at 2 PM in Tech LR2 |
| 6/1 | <i>The Fermi Paradox</i> (Read pp. 456-466) |
| Review Session: | Friday, June 5, 2009 at 2 PM in Tech LR2 |
| Final Exam: | Monday, June 8, 2009 at 9 AM in Tech LR2 |