

## **ASTR 3300 / GEOL 3300: EXTRATERRESTRIAL LIFE**

<http://jilawww.colorado.edu/~pja/astr3300/>

**TIME & PLACE:** Tuesday / Thursday 2:00 – 3:15pm Duane G125

**INSTRUCTOR:** Phil Armitage

**TA:** Emily Knowles

**EMAIL:** [pja@jilau1.colorado.edu](mailto:pja@jilau1.colorado.edu)

**OFFICE:** JILA tower A909, phone 303 – 492 – 7836. My mailbox is on the 2<sup>nd</sup> floor of the JILA tower, at the JILA reception.

**AIMS OF THE COURSE:** We do not know whether life – be it relatively simple microbes or the aliens of science fiction – exists elsewhere in the Universe. This class is an introduction to the rapidly developing discipline of *astrobiology* – the scientific study of the possibility of extraterrestrial life. During the semester, we will study a diverse range of scientific problems that, taken together, aim to address the question: is there life on other planets and, if so, how might we find evidence for its existence? In pursuit of this question we will study:

- The basic features of life on Earth, and speculations as to how life arose.
- How planets form, how planets can be detected around other stars, and the conditions for planets to be hospitable to life.
- The possibility of life elsewhere in the Solar System, particularly on Mars.
- How life might be detected on extrasolar planets.
- The search for intelligent life.

**OFFICE HOURS:** Official office hours will be 3:15-4:15 Tuesday (Phil Armitage, JILA A909), and 1:00-2:00 Thursday (Emily Knowles, location TBD). However, you're welcome to stop by my office at any time I'm in to discuss the class.

**PREPARATION:** The only formal prerequisite is a one year natural science sequence. However, as a “3000” level course, I will cover the material at a substantially higher level than in introductory science classes. I will make extensive use of (relatively elementary) mathematics in the sections of the course dealing with planet formation, planet habitability, detecting other planets, and communicating with other civilizations.

**EXAMS:** There will be one midterm, plus a final. The final is scheduled for Saturday May 3<sup>rd</sup>, 4:30-7:00pm.

**HOMEWORKS:** There will be regular written homeworks, which will be graded and

count toward the final grade.

**GRADING:** The final grade will be determined based on the homeworks (40%, the lowest score will be dropped), the midterm (20%) and the final (40%).

**TEXTBOOKS:** The class textbook is “Life in the the Universe” by Bennett & Shostak. This book covers most of the material in the class at a fairly elementary level. Reading it will give you a sound grounding in the topics that we will cover. A more advanced reference is the brief “Astrobiology Primer” - available on the web – which has references to the primary literature in the subject and is more research oriented.

**ACADEMIC INTEGRITY:** All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council. Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion).

For this class the most important things to remember are (obviously) *not* to cut and paste online material into essay-type questions (as well as being a violation of the above policy, it's easy to catch...), and, although it's fine to discuss homework with fellow students, to be sure that what you hand in is your “own work”. What that means practically is that if I were to question you about your work, you could justify what you had done and why.

**STUDENTS WITH DISABILITIES:** If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, or on the web via <http://www.Colorado.EDU/disabilityservices>

**OTHER POLICIES:** I will make every effort to deal reasonably and fairly with scheduling difficulties resulting from religious obligations. Please contact me as soon as possible if you anticipate such difficulties. The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550.