

# AST 2037: Life in the Universe

## Spring 2006

- Instructor: Stephen Kane
- Class time: Tuesday, 9:35am-10:25am CSE E119; Thursday, 9:35am-10:25am & 10:40am-11:30am CSE E119
- Text Book: The Search for Life in the Universe, Donald Goldsmith & Tobias Owen, 3rd edition
- Office: 312 Bryant Space Science Center
- Office hours: Mondays, 3:00pm-5:00pm
- Phone: 392-2052 x250
- Email: skane@astro.ufl.edu (write AST2037 in subject)
- Course website: <http://www.astro.ufl.edu/skane/teaching/ast2037/>

### Course description:

The possible existence of life beyond Earth is one of the most fundamental questions relating the human race to the physical Universe around us. While considerations of extraterrestrial life were in the domains of philosophy and science fiction in the past, today we have considerable scientific knowledge that can be applied to the question. Advances in modern astronomy have dramatically improved our understanding of our cosmic surroundings; in particular, direct evidence for planets around other stars has emerged in the past few years. Progress in astrochemistry, planetary science, meteoritics, biochemistry, paleontology, and evolutionary biology have given much insight (though not a complete understanding) on how life arose on Earth and constraints on life elsewhere in our Solar System. Together, the evidence is consistent with the existence of life elsewhere in the Galaxy, leading to astronomical efforts to search for extraterrestrial life principally using radio telescopes. Interstellar space travel between habitable planets, by humans or other beings, is exceedingly difficult but not physically impossible. The course includes historical and philosophical reflections on the existence of life in the Universe. Students will learn from reading the text, classroom presentations and discussions, and preparing a project paper on a specific topic.

### Student responsibilities and grading:

- **Homework (40%):** Homework will be based on materials covered in the lecture and textbook. Homework problems will be assigned on a rough bi-weekly basis with 5 homeworks in total. Submission of homeworks must be in person; either in class or brought to my office. Email homework submissions will not be accepted. Late homeworks will be penalised.

- **Quizzes (30%):** Twenty-minute in-class quizzes will be given approximately bi-weekly. Content will focus on recently covered material: lectures, readings, and discussion. Of the 7 quiz scores, the two lowest scores for each student will be dropped from the computation of the grade.
- **Term paper (30%):** Every student can either produce an individual effort or join a collaborative groups (2–4 students each) which will research any one of the topics related to life in the universe chosen by your group. Papers will be 5-10 pages (individual) or 15-20 pages long (subgroup), typed and double-spaced. A title and abstract for each paper must be submitted by the due date for approval. Failure to do this may impact the term paper final grade.
- There is no final exam.
- All grades and due dates will be listed on the course website. Any changes will be reflected on the website and announced in class.

Grades are as follows:

A = 90% to 100%

B = 80% to 89%

C = 70% to 79%

D = 60% to 69%

E = below 60%