

## Syllabus

**ASTR 1420 – Life in the Universe**

Fall 2009, TuTh (11:00AM – 12:15PM)

Room 221 in the Physics Building

Inseok Song

**Professor:****Office Number:**

Physics Building, Room 240

**Office Telephone Number:**

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**E-Mail Address:**[song@uga.edu](mailto:song@uga.edu)**Course Webpage:**<http://www.physast.uga.edu/~song/astr1420>**Office Hours:**

Tue after the class or by appointment

**Textbook:** Life in the Universe, Addison-Wesley, by Bennett & Shostak (2<sup>nd</sup> Ed.). Some topics covered in this course are not from this textbook.

**Reading requirement:** Read relevant chapters (check the course schedule) before the class. When topics are not from the textbook, relevant reading material may be posted on the course webpage.

**Prerequisite:** None

**Exam:** Three in-class exams: only two best scores out of three will be counted toward the final grade (50% each).

**Term paper:** A term paper (about 5 pages including a title page) on a suggested course relevant topic should be turned in before the last day of the semester. Email submission is OK, but you need to make sure that I received your term paper. The term paper will be counted as a bonus credit (max 5%) toward your final course grade. If you are using someone else's work in your report, you need to clearly provide a reference (even if it is a simple URL). Otherwise, your work will be regarded as plagiarism and a serious case will be reported to the University.

**Grading:** Letter grades will be assigned based on your final score (2 best exam scores + term paper) as follows. Final scores will be rounded (i.e., 89.990 --> 90 and 89.489 --> 89).

	87 ≤ B+ < 90	77 ≤ C+ < 80	60 ≤ D < 70	F < 60
90 ≤ A	83 ≤ B < 87	73 ≤ C < 77		
	80 ≤ B- < 83	70 ≤ C- < 73		

**Make-up of missing exam:** With a legitimate excuse, you may submit an essay paper (about 10 pages) on a topic selected from the list for term papers.

**Course Goals:** I intend this course to be the one that does not request you to memorize simple "facts". Obviously, you will be asked to remember some scientific terms, concepts, and facts for tests. But, the main objective of this course is understanding the meaning of life in the Universe and appreciating the precious nature of human beings. If this course provides you a chance to acquire an insight on what human needs to do to conserve our precious "Blue Dot", then it's great!

**Method of Instruction:** During class periods, lectures will be given mostly via powerpoint presentation and electronic version of lecture notes (likely PDF file) will be accessible from the course webpage.

**Withdrawal Policy:** Know the rules concerning withdrawals and incompletes, published in the UGA *Undergraduate Bulletin*. Note that I will NOT withdraw you from the course for excessive absences. Note also that after the midpoint of the semester, a withdrawal is assigned a grade of WF, except in those cases in which the student is doing satisfactory work and a withdrawal is recommended by the Office of Student Affairs (because of emergency or health reasons).

**Classroom code of Conducts:** Follow general rules and use your common sense.

**Course Topics and Dates (Tentative):**

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Date	Lecture#	Content
Aug 18		Course Introduction + Astrobiology: Science & non-science (Chap. 1)
Aug 20		-----No Class-----
Aug 25		What is Life? Defining Life (5.1)
Aug 27		Chemistry of Life: Origin of Elements (5.3)
Sep 01		Biology of Life: DNA and Evolution toward Technology (5.2, 5.4, 6.5)
Sep 03		What types of Life should we expect? Life at the Extreme (5.5)
Sep 08		History of Earth and Origin of Life (4.2, 4.3, 6.1, 6.2)
Sep 10		Habitability of Earth (4.4, 4.5)
Sep 15		Threats to Life on Earth: Mass Extinction (4.6, 6.4, 11.3)
Sep 17		Habitable Zone (10.1, 10.3, 10.4)
Sep 22		Exam #1
Sep 24		Life at the Extreme: What types of Life should we expect? (5.5)
Sep 29		Prospect of Life in the Solar System (7.1, 7.2, 7.3)
Oct 01		Martians? Search for Life on Mars (8.1, 8.2, 8.3, 8.4)
Oct 06		Life on Jovian Moons (9.1, 9.2)
Oct 08		Life on Titan and other places (9.3)
Oct 13		Exoplanets (11.2)
Oct 15		Search for exoplanets I
Oct 20		Search for exoplanets II (Direct Imaging)
Oct 22		Biomarkers & Finding Earth around other Stars: Prospect
Oct 27		Exam #2
Oct 29		Drake Equation (12.1)
Nov 03		SETI (12.3)
Nov 05		Will SETI fail? Longevity of Civilization (12.2)
Nov 10		Fermi Paradox: Aliens, where are they? (13.3)
Nov 12		Will SETI fail?
Nov 17		UFOs, Area 51, etc (12.4)
Nov 19		Interstellar Travel (13.1, 13.2)
Thanksgiving		-----No Class-----
Dec 01		Space colonization, space engineering, and terra-forming (13.3)
Dec 03		Human and environment (population, pollution, etc)
Dec 08		Exam #3

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