

Syllabus
Astrobiology
PHY 700: Current Trends in Physics
Spring 2013, University of Pretoria

This course will introduce you to the field of astrobiology, which is the study of life outside beyond the Earth. This young field covers areas of physics, biology, astronomy, chemistry, and more. The focus will be on astrobiology from a physics and astronomy perspective -- more than from, e.g., the molecular biology angle -- simply because that is my background.

A major part of this class will involve readings in the scientific literature, including classic papers, new research, and review articles. I will provide these for you, and assign a leader for the discussion. You should come with them read, and be prepared to discuss them. They will be posted as PDFs on the course web page at <http://www.eaubergine.com/astrobiology/> .

This is a broad and interdisciplinary field. We will cover a few highlights. If there is something that you would like the class to cover, please let me know!

This class will in general emphasize concepts over math and derivations. Seeing the big picture is important. Asking questions is important: astrobiology is a field with a lot more questions than answers.

Goals of the class

- Develop a foundation in current topics of astrobiology, and in particular exoplanets, the search for life in the solar system, and SETI.
- Apply quantitative methods of physics to diverse fields within astrobiology.
- Gain experience reading and discussing topical literature.
- Learn to think critically: "Extreme claims require extreme evidence"!

Class Dates

September 30; October 2, 4, 21, 22, 28, 30; November 1, 4, 6

Time: 09h00 - 11h00, Natural Sciences 1, Lecture Hall 5-31.

1-2 external sessions to watch films of astrobiological significance, scheduled by mutual agreement or on your own.

Grading

Class Participation	25%
Problem Sets	10%
Final Paper	25%
Final Exam	40%

Instructor

Dr. Henry Throop

Natural Sciences 1, Room 5-18

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Office hours: I am here most days, but am easy to reach by e-mail to set up an appointment. If you have questions, others probably do too -- so don't hesitate to bring up questions in class!