

Astrobiology

Spring HSSP 2024

Introduction

Hello! My name is Kenny, and I super hyped to be teaching Astrobiology to you all! This class is intended for curious people interested in stretching their minds a bit and thinking about life itself in a bit of a different way.

Scope and Brief Logistics

Astrobiology is an emerging discipline that puts a scientific spin on some enduring questions: why are we here? Is there anyone else out there in the universe? How would we know? It is the study of the emergence, maintenance, and propagation of life, both here on Earth and on other planets. We will also study related questions, some more philosophical in nature, that relate to space colonization and communication with potentially advanced civilizations.

Throughout the class, I will provide a number of readings and videos as companions to what we talk about in class. These aren't required *per se*, but I consider them quite interesting and entertaining, so watching and reading them will help you get a lot more out of the class.

Schedule

Week 1: Life on Earth (And, Perhaps, Other Places)

Sense of scale • Origin of life/key moments
• Silurian hypothesis • What might be the same, or different, for alien life

Week 2: The Fermi Paradox

Where are they? • The Great Filter •
Solutions and possibilities

Week 3: Space Travel and Colonization

Life in space • Surviving long voyages (or not?) • Interstellar travel

Week 4: Terraforming

General overview • Mars example

Week 5: Communication

How would we know who's out there? •
Sending messages (or not) • Message content