

Astronomy 183 — Course outline

Here are my present thoughts about the outline of the course. This schedule is subject to change, and all assignments and due dates are particularly uncertain.

Welcome, introduction to astrobiology and science

Lectures 1, 2, 3 August 25, 27, 29
Reading: Chapter 1; Section 2.3; Epilogue

The definition of life and the origin of life

Lectures 4, 5 September 3, 5 [No class on September 1: Labor day]
Reading: Sections 5.1, 6.1, 6.2

Chemistry and life

Lectures 6, 7, 8 September 8, 10, 12
Reading: Section 3.4
Assignment out: Homework #1 (September 10)

Biology and life

Lectures 9, 10, 11 September 15, 17, 19
Reading: Sections 5.2, 5.3, 5.4, 5.5
Assignment in: Homework #1 (September 19)

Physics and life

Lectures 12, 13, 14 September 22, 24, 26
Reading: Sections 2.4, 3.4
Assignment out: Homework #2 (September 24)

Astronomy and life

Lectures 15, 16, 17, 18 September 29, October 1, 3, 6
Reading: Sections 2.1, 2.2, 2.4, 3.1, 3.2, 3.3, 3.4, 7.2, 7.3, 9.1; Chapter 11
Assignment in: Homework #2 (October 3)
Assignment out: Final paper (October 1)

Geology, early Earth, and life

Lecture 19 October 8
Reading: Sections 4.1, 4.4, 7.1

Midterm exam

Midterm exam October 10

Earth evolution and other planets

Lecture 20: Early Earth October 15 [No class on October 13]
Lecture 21: Comparative climatology and planetology October 17
Reading: Sections 3.3, 4.3, 4.5, 8.3; Chapter 10, and especially Section 10.5
Assignment out: Homework #3 (October 15)

Case studies

Lectures 22, 23, 24: Europa, Titan, Enceladus October 20, 22, 24
Reading: Section 7.3; Chapter 8
Assignment in: Homework #3 (October 24)
Assignment in: Final paper proposal (October 24)

Lecture 25, 26, 27: Mars October 27, 29, 31
Reading: Section 6.2, Chapter 7

Life on Earth

Lecture 28: Prokaryotes and eukaryotes November 3
Lecture 29: Evolution November 5
Lecture 30: Mass extinctions November 10 [No class November 7]
Reading: Sections 5.1, 5.2, 5.4, 6.3, 6.4, 6.5

Life elsewhere

Lectures 31, 32: Detection of life elsewhere November 12, 14
Lecture 33: Signatures of life November 17
Reading: Section 8.4; Chapter 11

Lectures 34, 35, 36: Drake equation, SETI November 19, 21, 24 [No class Nov. 26]
Reading: Chapter 12
Assignment in: Final paper (November 21)

Putting it all together

Lectures 37, 38, 39: Mars Phoenix and other global thoughts December 1, 3, 5
Reading: Section 7.4; Chapter 13

Final exam

Final exam December 10, 12:30 – 2:30 pm