Astronomy 183 — Course outline (may be subject to change)

Welcome, introduction to astrobiology and science

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

The definition of life and the origin of life

Lectures 3, 4 ..... September 1, 3
Reading: Sections 5.1, 6.1, 6.2

Chemistry and life

Lectures 5, 6 ..... September 8, 10
Reading: Section 3.4

Assignment out: Homework #1 (September 8)

Biology and life

Lectures 7, 8 ..... September 15, 17
Reading: Sections 5.2, 5.3, 5.4, 5.5, 6.1

Assignment in: Homework #1 (September 17)

Physics and life

Lectures 9, 10, 11 ..... September 22, 24, 29
Reading: Sections 2.4, 3.4

Assignment out: Homework #2 (September 22)

Astronomy and life

Lectures 12, 13, 14 ..... October 1, 13, 15
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 1)
Assignment out: Homework #3 (October 1)
Assignment out: Final paper assignment (October 1)
Assignment in: Homework #3 (October 15)

Geology, Earth evolution, and life; comparative planetology

Lecture 15 ..... October 20
Reading: Sections 4.1, 4.3, 4.4, 4.5, 7.1, 8.3; Chapter 10, and especially Section 10.5

Midterm exam

Midterm exam ..... October 22

Case studies

Lecture 16: Mars ..... October 27
Lecture 17: Europa ..... October 29
Lecture 18: Enceladus ..... November 3
Lecture 19: Titan ..... November 5
Reading: Sections 7.2, 7.3; Chapters 8 and 9

Assignment in: Term paper proposal (October 29)
Assignment out: Homework #4 (November 3)

Life on Earth

Lecture 20: Prokaryotes and eukaryotes ..... November 10
Lecture 21: Evolution ..... November 12
Lecture 22: Mass extinctions ..... November 17
Reading: Sections 5.1, 5.2, 5.4, 6.1, 6.3, 6.4, 6.5

Assignment in: Homework #4 (November 17)

Life elsewhere

Lecture 23: Detection of life elsewhere, signatures of life ..... November 19
Lecture 24: Drake equation, SETI ..... November 24
Lecture 25: Messages sent to space ..... December 1
Reading: Section 8.4; Chapter 11 and 12

Assignment in: Term paper (November 24)

Putting it all together

Lectures 27: Global thoughts ..... December 3
Reading: Section 7.4; Chapter 13

Final exam

Final exam ..... December 10, 12:30 – 2:30 p.m.