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

Welcome, introduction to astrobiology and science

Lectures 1, 2 ..... January 13, 15
Reading: Chapter 1; Section 2.3; Epilogue

The definition of life and the origin of life

Lectures 3, 4 ..... January 20, 22
Reading: Sections 5.1, 6.1, 6.2

Chemistry and life

Lectures 5, 6 ..... January 27, 29
Reading: Section 3.4

Assignment out: Homework #1 (January 27)

Biology and life

Lectures 7, 8 ..... February 3, 5
Reading: Sections 5.2, 5.3, 5.4, 5.5, 6.1

Assignment in: Homework #1 (February 5)

Physics and life

Lectures 9, 10, 11 ..... February 10, 12, 17
Reading: Sections 2.4, 3.4

Assignment out: Homework #2 (February 10)

Astronomy and life

Lectures 12, 13, 14 ..... February 19, 24, 26
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 (February 19)
Assignment out: Homework #3 (February 24)
Assignment out: Final paper assignment (February 26)

Geology, Earth evolution, and life

Lecture 15, 16 ..... March 3, 5
Reading: Sections 4.1, 4.4, 7.1

Assignment in: Homework #3 (March 5)

Comparative planetology

Lecture 17 ..... March 10
Reading: Sections 4.3, 4.5, 8.3; Chapter 10, and especially Section 10.5

Midterm exam

Midterm exam ..... March 12

Case studies

Lecture 18: Europa ..... March 24
Lecture 19: Enceladus ..... March 26
Lecture 20: Titan ..... March 31
Lecture 21: Mars ..... April 2
Reading: Sections 7.2, 7.3; Chapters 8 and 9

Assignment in: Final paper proposal (March 31)
Assignment out: Homework #4 (March 31)

Life on Earth

Lecture 22: Prokaryotes and eukaryotes ..... April 7
Lecture 23: Evolution ..... April 9
Lecture 24: Mass extinctions ..... April 14
Reading: Sections 5.1, 5.2, 5.4, 6.1, 6.3, 6.4, 6.5

Assignment in: Homework #4 (April 9)
Assignment out: Homework #5 (April 14)

Life elsewhere

Lecture 25: Detection of life elsewhere, signatures of life ..... April 16
Lecture 26: Drake equation, SETI ..... April 21
Lecture 27: Messages sent to space ..... April 23
Reading: Section 8.4; Chapter 11 and 12

Assignment in: Homework #5 (April 23)

Putting it all together

Lectures 28: Global thoughts ..... April 28 [no class on April 30]
Reading: Section 7.4; Chapter 13

Assignment in: Final paper (April 28)

Final exam

Final exam ..... May 7, 10 a.m. – noon