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

Welcome, introduction to astrobiology and science

Lectures 1, 2 ............................................................... January 12, 14
Reading: Chapter 1; Section 2.3; Epilogue

The definition of life and the origin of life

Lectures 3, 4 ............................................................... January 19, 21
Reading: Sections 5.1, 6.1, 6.2

Chemistry and life

Lectures 5, 6 ............................................................... January 26, 28
Reading: Section 3.4

Assignment out: Homework #1 (January 26)

Biology and life

Lectures 7, 8 ............................................................... February 2, 4
Reading: Sections 5.2, 5.3, 5.4, 5.5, 6.1

Assignment in: Homework #1 (February 4)

Physics and life

Lectures 9, 10, 11 ........................................................... February 9, 11, 16
Reading: Sections 2.4, 3.4

Assignment out: Homework #2 (February 9)

Astronomy and life

Lectures 12, 13, 14 ...................................................... February 18, 23 [no class Feb 25]; March 2
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 18)
Assignment out: Homework #3 (February 23)
Assignment out: Final paper assignment (February 23)

Geology, Earth evolution, and life

Lectures 15, 16 ............................................................. March 4, 9
Reading: Sections 4.1, 4.4, 7.1

Assignment in: Homework #3 (March 4)
Midterm exam

Midterm exam  ...................................................... March 11

Comparative planetology

Lecture 17  ............................................................... March 23
Reading: Sections 4.3, 4.5, 8.3; Chapter 10, and especially Section 10.5

Case studies

Lecture 18: Mars  ..................................................... March 25
Lecture 19: Europa  .................................................. March 30
Lecture 20: Enceladus  ............................................ April 1
Lecture 21: Titan  ..................................................... April 6
Reading: Sections 7.2, 7.3; Chapters 8 and 9

Assignment in: Term paper proposal (March 25)
Assignment out: Homework #4 (March 30)

Life on Earth

Lecture 22: Prokaryotes and eukaryotes  ................................ April 8
Lecture 23: Evolution  ............................................... April 13
Lecture 24: Mass extinctions  ....................................... April 15
Reading: Sections 5.1, 5.2, 5.4, 6.1, 6.3, 6.4, 6.5

Assignment in: Homework #4 (April 8)
Assignment out: Homework #5 (April 13)

Life elsewhere

Lecture 25: Detection of life elsewhere, signatures of life  .................. April 20
Lecture 26: Drake equation, SETI  .................................. April 22
Lecture 27: Messages sent to space  .................................. April 27
Reading: Section 8.4; Chapter 11 and 12

Assignment in: Homework #5 (April 22)

Putting it all together

Lectures 28: Global thoughts  ........................................ April 29
Reading: Section 7.4; Chapter 13

Assignment in: Term paper (April 29)

Final exam

Final exam  .............................................................. May 6, 12:30 – 2:30 p.m.