

HOMEWORK ASSIGNMENTS

AST 105IN Life in the Universe

Spring 2012 and after

NB: On problems requiring calculations, you must show the calculation setups. The calculations themselves may be done with a calculator. Do you know what “NB” means?

The reading part of assignments is given in the left column.
The written part of assignments is given in the right column.

At the ends of chapters:

- Review Questions: “RQ”
- Discussion Questions: “DQ”
- Quantitative Problems: “QP”
- Science or Nonscience?: “S/NS”
- Does it Seem Reasonable?: “R?”
- Does it Make Sense?: “S?”
- Would You Believe It?: “WB”
- Evaluate the Opinions: “EP”
- Quick Quiz: “QQ”

Note regarding the Quick Quiz questions: I do not require you to explain in one or more sentences why you made your particular multiple choice as the textbook requests. Simply write the letter of your choice.

Assignment 1

Due date: _____

“How to Succeed...Astrobiology Course” pp. xiv, xv
Ch. 1, “A Universe of Life?” pp. 1-12
Ch. 2.1, “The Ancient Debate about LBE” pp. 16-25
Ch 2.2, “The Copernican Revolution” pp. 25-33.
Ch. 2.4 “The Fact and Theory of Gravity” pp. 41-44

RQ. 1,2,4,6,10; QQ.11-20.
RQ. 1,4,7,10,11,15,17; QQ. 31-34; QP. 52,53,56

Assignment 2 – Foundational Assignment

Due date: _____

Introductory Course Note Set

Question sheets (hand, but also downloadable from Course Documents page)

Assignment 3

Due date: _____

Ch. 2.3, “The Nature of Modern Science” pp. 33-41
Ch. 3.4 “A Universe of Matter and Energy” pp. 80-89

RQ. 12-16; S/NS. 20,21,24-27; QQ. 35-38;
RQ. 17; R?. 26-29; QQ. 44; QP. 58 (Hints: $d=rt$; Use 300,000 km/s for the speed of light; convert to minutes)

TEST 1 Date: _____

Assignment 4

Ch. 3 "The Universal Context of Life" pp. 50-95
(except 3.4, covered in Assignment 3)

Due date: _____

RQ. 1,4,9,11,13,14,22,24; R?. 30,33; QQ. 35-43; QP. 60,63 (Hints: $d=rt$; Use 300,000 km/s for the speed of light.),66 (Hint: the odds of one planet orbiting in a particular sense is one out of two, or $\frac{1}{2}$)

Assignment 5

Ch. 11.1 "Distant Suns" pp. 359-368
Ch. 11.4 "...Science in Action: Classifying Stars"
pp. 386-391

Due date: _____

RQ. 1,4,5; WB. 17,22,23,26; QQ. 27-29,36

TEST 2 Date: _____

Assignment 6

Ch. 10 "The Nature and Evolution of Habitability"
pp. 326-354
Ch. 11.2 "ExtraSolar Planets" pp. 368-382

Due date: _____

RQ. 1,2,4,7,13,15-17; S?. 20,21,23,25,28; QQ. 29-38; QP. 51
Hint: Mars distance=1.53 AU; Venus=0.72 AU
RQ. 5,9,12; QQ. 30-35; QP. 49,51

Assignment 7

Ch. 4 "The Habitability of Earth" pp. 101-145
Ch. 11.3 "The Possibility that Earth is Rare" pp. 382-386

Due date: _____

RQ. 1,2,5,6,17; S?; 21-25,28; QQ. 31-38,40; QP. 49,50a,51a,52

Assignment 8

Ch. 5 "The Nature of Life on Earth," pp. 150-183
except 5.6 "Evolution as Science" covered in next
assignment
"Charles Darwin and...Evolution," pp. 160,161
Ch. 6 "The Origin and Evolution of Life on Earth"
through 6.2 "The Origin of Life" pp. 192-207
Rest of chapter covered in next assignment

Due date: _____

RQ. 1-3,5-8,11,12; QQ. 27-35

List significant points (for 4 pts.)
RQ. 1-3,6; WB. 23,24,26; QQ. 33-38

TEST 3 Date: _____

Assignment 9

Ch. 5.6 "Evolution as Science" pp. 183-187
Ch. 6.3 "The Evolution of Life"
Ch. 6.4 "Impacts and Extinctions" pp. 208-231

Due date: _____

RQ. 15,16; QQ. 36
RQ. 8,10,13,18-20; WB? 27,29-31; QQ. 39-42;QP. 52

Assignment 10

Due date: _____

Ch. 7, "Searching for Life in Our Solar System"
pp. 237-256

RQ. 1,4,8,12,13; WB?. 16-18; QQ. 25-34; QP. 41 (Hint: Apply the approximation to use the simplified version of the equation.), 42

Assignment 10N

Due date: _____

Ch. 8 "Mars," pp. 260-289
Ch. 9 "Life on Jovian Moons," pp. 293-321

RQ. 3,6-10,14; QQ. 31-40
RQ. 1,4-6,8,10; QQ. 25-33

Assignment 11

Due date: _____

Ch. 12 "The Search for Extraterrestrial Intelligence"
pp. 396-430

RQ. 1-3,5,6,13,14; EP. 15,16,19,21,23; QQ. 25-34; QP. 43

Ch. 13 "Interstellar Travel & Fermi Paradox," pp. 435-465
Skip the last section 13.4 "Einstein's Theory of Relativity"

Q. 2,7,8,10,11,14-16; QQ. 31-38

TEST 4 **Date:** _____

Assignment 12

Due date: _____

"Epilogue: Contact—Implications of the Search and
Discovery," pp. 477-484

List significant points

"Never regard study as a duty but as an enviable opportunity to learn...for your personal joy and to the profit of the community to which your later works belong."

Albert Einstein
