

HOMWORK ASSIGNMENTS

AST 105IN Life in the Universe

Fall 2008 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: _____

Ch. 1, "A Universe of Life?" pp. 1-12

RQ. 1,2,4,5,10; QQ.11-20.

Assignment 2

Due date: _____

Ch. 2 "The Science of Life in the Universe" pp. 16-42

RQ. 1,5,7-12,14,17; S/NS. 19,21,23,25,27; QQ. 29-38; QP. 52,53,56

Foundational Assignment

Due date: _____

Introductory Course Note Set

Question sheets (download from Course Downloads page, if not handed out.)

Assignment 3

Due date: _____

Ch. 3.4 "A Universe of Matter and Energy" pp. 80-88

RQ. 17,19,20; R?. 26-28; QQ. 44; QP. 57,58

TEST 1 Date: _____

Assignment 4

Ch. 3 "The Universal Context of Life" pp. 48-93
___(except 3.4, covered in Assignment 3)

Due date: _____

RQ. 1,11,13,14,22,24; R?. 29,30,33; QQ. 35-43; QP. 60,63,65,66

Assignment 5

Ch. 11.1 "Distant Suns" pp. 360-369
Ch. 11.4 "...Science in Action: Classifying Stars"
pp. 388-393

Due date: _____

RQ. 1,3,4,15; WB. 26; QQ. 27,28,29,36

TEST 2 Date: _____

Assignment 6

Ch. 10 "The Nature and Evolution of Habitability"
except 10.5 "Global Warming" pp. 328-348

Due date: _____

RQ. 1,2,4,7,13; S?. 20,21,23,25; QQ. 29-36; QP. 50 (NOTE: You need radius in m, not km. ALSO NOTE that Earth radiates its internal energy through its entire surface, but receives its solar energy only through half of its surface, see?),51
Note: You may read and outline Sec 10.5 for OA credit
RQ. 5,9,11; QQ. 30-35; QP. 47,50,52

Ch. 11.2 "ExtraSolar Planets" pp. 369-384
Ch. 11.3 "The Possibility that Earth is Rare" pp. 384-388

Assignment 7

Ch. 4 "The Habitability of Earth" pp. 99-143

Due date: _____

RQ. 1-3,5,6,17,20; S?; 21-25; QQ. 31-40; QP. 49,50,52

Assignment 8

Ch. 5 "The Nature of Life on Earth," pp. 148-181
except 5.6 "Evolution as Science" covered in next
assignment
"Charles Darwin and...Evolution," pp. 158,159
Ch. 6 "The Origin and Evolution of Life on Earth"
through 6.2 "The Origin of Life" pp. 190-206
Rest of chapter covered in next assignment

Due date: _____

RQ. 1-3,5-8,11,12; QQ. 27-35; QP. 47 (Hints: It is safe to assume both the cell and the atoms are spherical, but you need only calculate the volume for the atom. The formula for the volume of spheres is $(4/3)\pi R^3$, where R is the radius.)
List significant points
RQ. 1-3,6; WB. 23,24,26; QQ. 33-38

TEST 3 Date: _____

Assignment 9

Ch. 5.6 "Evolution as Science" pp. 181-185
Ch. 6.3 "The Evolution of Life" to end pp. 206-229

Due date: _____

RQ. 15,16; QQ. 36
RQ. 8,10,11,13,16,18-20; WB? 27,29-31; QQ. 39-42;QP. 52

Assignment 10

Due date: _____

Ch. 7, "Searching for Life in Our Solar System"
pp. 235-251 Skip 7.4 "Spacecraft Exploration of the
Ch. 8 "Mars," pp. 260-290
Ch. 9 "Life on Jovian Moons," pp. 295-323

RQ. 1,4,5,8,11,12; WB?. 16-18; QQ. 25-33; QP. 41 (Hint: Apply the
SS" approximation to use the simplified version of the equation.), 42
RQ. 3,6-10,14; QQ. 31-40; QP. 52
RQ. 1,4-6,8,10,12,14; QQ. 25-34; QP. 45 (Requires App. E, Table 3)

Assignment 11

Due date: _____

Ch. 12 "The Search for Extraterrestrial Intelligence"
pp. 398-432

RQ. 1-3,5,6,13,14; EP. 15,16,19,21,23,24; QQ. 25-34; QP. 43

Assignment 12

Due date: _____

Ch. 13 "Interstellar Travel & Fermi Paradox," pp. 437-466
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 13

Due date: _____

"Epilogue: Contact—Implications of the Search and
Discovery," pp. 477-485

Structured Outline as described in OA credit instructions

"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
