

Test Four Preview

AST 105 Life in the Universe

Refer to the start of the Preview Sheet for Test 1 for general study advice, as always.

Unit XV in the blue Course Outline sheets is “Life on Earth.” We covered its Units I and II on the nature and origin of life in Test 3.

We start the material for Test 4 at Unit III in the “Life on Earth” class notes. Unit III is “Evolution of Life on Earth,” Key points in its sections follow:

Sections A (Evolution definition embodies two aspects) and B (Basic question people have regarding evolution) each tell us the basics of how to approach in understanding evolution. Know the essence of the two approaches presented here.

Unit IV. The Fact of Evolution is incontrovertible and rests upon...evidence. There’s an obvious list-type question here for the test...

- What was the first great discovery of geology?
- Phylogeny—Try to memorize the Taxonomic Classification System.
- Homologous structure
- Regarding biogeography’s contributions to the understanding of evolutionary sequences, from where did Darwin’s Galapagos Island finches come?
- ecological niche
- Molecular biology notes the correlation of what over the passage of time? What molecules are studied in order to determine evolutionary relatedness?
- What is one reason for the absence of intermediate life forms? Hint: the fruit fly wings experiment. There is a second reason given elsewhere. Might be opportunity for extra credit here if you can answer with it, too.
- Be able to distinguish relative age dating from absolute age-dating.
- What was an early “outside the field” prediction made on the basis of evolution by Darwin that was later shown to be true?

Unit V. “The Theory of Evolution.” Be prepared to see the following on the test:

- principle of natural selection
- descent with modification
- survival of the fittest
- genotype
- phenotype
- The power of the theory of evolution—Thoughts from this section may be utilized in the test.
- Final points about The Theory of Evolution
- What is the role of quantum mechanics in the random aspect of evolution?
- Know how the two predictable influences on life’s evolution (chemistry and the environment) make the evolution of life not totally random.

Unit VI, “Scientific” Creationism (SC) and its Ver. 2.0 “Intelligent Design” (ID)”

Section A, “Philosophical aspects of “Scientific” Creationism”

- **Natural Theology by Rev. William Paley and the design argument for the existence of God**
- **Special Creation**
- **What is missing in both Genesis creation accounts**
- **The 5 fundamentals—which is the one that leads to anti-evolutionism**
- **What is missed by accepting as literal and final the Genesis creation accounts**

Section B, “Problems with “Scientific” Creationist Arguments and the claimed evidence against Evolution”

- **The three basic scientific and philosophical objections to SC—These are most important to know.**

Section C, “Intelligent Design (“Scientific” Creationism ver. 2.0)”

- **The two improvements over SC**
- **irreducible complexity and what its proponents miss**
- **How ID has encouraged creationists to legally push public school systems to teach it in science classrooms**

Unit VII, “The Geologic Time Scale and The History of the Evolution of Life on Earth”

Assignments 9 and 10 cover evolution of life on Earth and the possibilities of life in the solar system. In addition to whatever little we’ve covered in class in our last lectures, be able to answer any question or problem of those assignments. They cover the material very well.

Because of time constraints, you are not responsible on Test 4 for material introduced in Assignments 11 and 13.