

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

 x Transfer course X A.A. degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: Biology 107 - Evolutionary Biology

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS: none

PREREQUISITE:

COREQUISITE:

RECOMMENDED PREPARATION:

SCOPE OF COURSE:

Biological concepts related to the origin of species and the evolution of the diversity of life. Topics include scientific process, basic chemistry, biochemistry, genetics, evolutionary mechanisms, speciation, and evolution of major taxonomic groups of organisms.

SPECIFIC COURSE OBJECTIVES:

The successful student will:

1. Compare and contrast scientific conclusion and belief.
2. Describe the nature of chemical bonds.
3. Describe the major biological monomers and polymers.
4. Discuss the nature of DNA, its expression, and its heritability.
5. Compare and contrast hypotheses on the origin of life.
6. Discuss the mechanisms of evolution and how they produce speciation.
7. Discuss the evidence for a common ancestry of organisms.
8. Discuss the evolution of plants, fungi, and animals.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. The nature of science.
 - A. Science as a process.
 - B. Science vs. non science.
- II. Basic Chemistry.
 - A. Sub atomic particles and properties.
 - B. Chemical bonding.
 - C. Chemical reactions and equations.
- III. Biochemistry.
 - A. Monomers and polymers.
 - B. The major biological macromolecules.
 - C. Enzymes and their function.
- IV. Cell structure and function.
- V. Metabolism.
 - A. The role of ATP.
 - B. Photosynthesis.
 - C. Cellular oxidation of glucose.
- VI. Genetics.
 - A. DNA structure.
 - B. Protein synthesis.
 - C. Mutation.
 - D. Chromosome replication.
 - E. Mitosis and the cell cycle.
 - F. Meiosis and sexual reproduction.
 - G. Mendelian Inheritance.
 - H. The myth of spontaneous generation of life.
 - I. Population genetics.
- VII. Origin of life.
- VIII. History of evolutionary theory.
- IX. Mechanisms of evolution.
- X. Speciation.
- XI. Evidence for common ancestry of organisms.
- XII. Systematics and classification.
- XIII. Molecular phylogenies.
- XIV. Plant evolution.
- XV. Fungal evolution.
- XVI. Protist evolution.
- XVII. Animal evolution.
 - A. Invertebrates.
 - B. Vertebrates.
 - C. Human evolution.

REQUIRED READING:

Strickberger, Monroe W. Evolution. Second Edition. Sudbury, MA:
Jones and Bartlett, 1996.

Or similar text

SUGGESTED READING:

Selected articles as identified by the instructor.

REQUIRED WRITING:

During each unit of study each student will answer a number of essay questions designed to promote critical thinking and integration of concepts. The instructor may assign either a term paper, or shorter assignments on topics to be determined by the instructor. A minimum of ten pages will be written.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short term classes.

Outside assignments may include readings, preparation for examinations, and completing writing assignments.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply. (See guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

GRADING POLICY AND STANDARDS (include methods for determining whether the stated objectives have been met by students):

Evaluation of students may include writing assignments, quizzes, examinations, and other assignments. Approximately 75% of the course grade may be determined from examination, and 25% from other assignments.

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit: 1.

If yes, identify specific provision of Title 5 Division 2 section(s) 55761-55763 and 58161 which qualifies course as repeatable:

SIGNATURES ON FILE
