

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 201 – Foundations of Biology II

UNIT VALUE: 5 units

MINIMUM NUMBER OF SEMESTER HOURS: 144 hours

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills

ENTRANCE REQUIREMENTS

PREREQUISITE: Completion of, or concurrent enrollment in, Biology 200

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

An examination of the diversity of life, as seen in the Eubacteria, Archaea, and Eukarya, emphasizing the integration of structure and function, development, life histories, phylogenetics, animal behavior, and ecology. Recommended for biology majors.

SPECIFIC COURSE OBJECTIVES:

The successful student will:

1. analyze how science is done, and how scientific reasoning differs from other methods of reasoned conclusion;
2. demonstrate proper safety in the laboratory and field;
3. properly use and maintain laboratory and field equipment;
4. conduct simple experiments of their own design;
5. statistically evaluate data, using confidence levels (intervals);
6. evaluate the phylogenetic relationship between the Eubacteria, Archaea, and Eukarya;
7. discuss the phylogenetic and characteristics of major clades of organisms within the Domains of life;

8. compare and contrast the life histories of representative organisms;
9. compare, contrast, and identify the major plant and animal tissues;
10. compare and contrast specific examples of plant physiology including the functions of major plant hormones, primary and secondary growth, and seed germination;
11. compare and contrast the evolution, anatomy, and physiology of animal organ systems;
12. compare and contrast homeostatic mechanisms in representative animals;
13. compare and contrast major continental and marine ecosystems;
14. describe biogeochemical cycles in ecosystems;
15. analyze the basic principles of animal behavior in individuals, groups, conspecific interactions, and heterospecific interactions;
16. describe heterospecific interactions in ecosystems, including trophic relationships, with examples;
17. describe conspecific interactions in ecosystems;
18. analyze the basic principles of populations dynamics, including human population; and
19. analyze human impact on ecosystems.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I) Survey of major physical and biological events, and time frames of geologic record.
- II) The Diversity of Life
 - A) Review of schemes of classification.
 - B) General characteristics of the three Domains of life and their phylogenetic relationship.
 - 1) Characteristics unique to each.
 - 2) Characteristics shared by Domains, and phylogenetic interpretations.
 - 3) Eukaryan assimilation of prokaryotic symbionts.
 - 4) Problems created by interspecific (interdomain) gene transfer.

- C) Survey of the Eubacteria.
 - 1) Morphology, biochemistry, habitat, life histories, and other characteristics used in classification and identification.
 - 2) Characteristics and examples of organisms within major clades of Eubacteria.
 - 3) Basic laboratory techniques involving prokaryotes.

- D) Survey of the Archaea.
 - 1) Morphology, biochemistry, habitat, life histories, and other characteristics used in classification and identification.
 - 2) Characteristics and examples of organisms within major clades of Archaea.

- E) Survey of the Eukarya.
 - 1) General characteristics, life histories, and phylogenetics of Protist clades
 - 2) General characteristics, life histories, and phylogenetics of Fungal clades.
 - 3) General characteristics, life histories, and phylogenetics of Plant clades.
 - 4) General characteristics, life histories, and phylogenetics of Animal clades

III) Organismal biology.

- A) The evolution, adaptive significance, anatomy, and physiology of plant and animal tissues, organs, and organ systems.
- B) Metazoan embryonic development from fertilization through coelom formation, contrasting Protostomates and Deuterostomates.
- C) Thermoregulation and homeostasis in Metazoans.
- D) Biological bases for Metazoan behavior
- E) Symbiotic relationships.

Ecological Relationships

- A) Ecosystem structure
- B) Major continental and marine ecosystems, and their biogeography.
- C) Energy flow.
- D) Biogeochemical cycling.
- E) Ecological succession.
- F) Individual, group, heterospecific and conspecific animal behavior as it relates to phylogenetics and ecosystems.
- G) Population Dynamics, (including human population dynamics).
- H) Human impact on nature.

REQUIRED READING:

Purves, W. K. et al. Life, the Science of Biology. 5th edition. Sunderland; MA: Sinauer Associates, Inc., 1998.

Helms, D. R. et al. Biology in the Laboratory. 3rd edition. New York: W. H. Freeman and Company, 1998.

Rust, T. A Guide to Biology Lab. 3rd edition. Boerne, TX: Southwest Educational Enterprises, 1983.

and Instructor generated handouts.

SUGGESTED READING:

None

REQUIRED WRITING:

All exams require written answers to questions between one and two pages in length. Laboratory exercises require written reports that may be several pages in length. Students are required to design and implement an experiment involving seed germination. They must write an abstract, proposal, and paper in their work. This project will require approximately 12 pages of writing. Short papers on a variety of subjects may be assigned during the semester. Students will do approximately 30 pages of writing during the course.

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 include the following: preparing for exams and quizzes, researching and conducting seed germination project, analyzing data and writing paper for seed germination project, preparing laboratory exercises, and completing assigned readings and short papers.

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 X

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

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)

_____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on students access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

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

Evaluation of students may include analysis of the following assignments: examinations, quizzes, laboratory reports, projects, papers, and other assignments. At least 2/3 of a student's course grade is determined via examinations, with up to 1/3 from other assignments.

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

YES NO Number of times course may be taken for credit _____.

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

CONTACT PERSON: Daniel Sourbeer, x 2775

SIGNATURES:

SIGNATURES ON FILE

October 6, 2000
\\NEW-Bio201.course outline of record-10.6.00
9/00