

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: BIOL 106L Biology with a Human Emphasis (Laboratory)

UNIT VALUE: 1 unit

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills

ENTRANCE REQUIREMENTS:

PREREQUISITE: Completion of, or concurrent enrollment in, BIOL 106

COREQUISITE:

RECOMMENDED PREPARATION:

SCOPE OF COURSE:

Laboratory experiences designed to demonstrate cellular structure and function as they relate to the human organism. An examination of major body systems is included. *Not open to students with prior credit in BIOL 105.* CSU; UC*

SPECIFIC COURSE OBJECTIVES:

Upon completion of this course, a successful student will be able to:

1. Demonstrate the scientific process through experimental design, basic laboratory work, and data analyses of laboratory exercises;
2. Demonstrate the care and proper usage of laboratory equipment such as light microscopes and calibrated measuring devices such as pipettes and graduated cylinders, among others;
3. Use the metric system of measurement for linear, mass, and volume measurements.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

The laboratory section will include the topics I - XIV as described below. Additional laboratory exercises will be chosen by the instructor. These additional laboratory sessions can include: homeostasis; analysis of biological molecules; presentation & discussion of sexually-transmitted diseases; nutritional analysis of student

diets; blood-typing exercises with simulated blood products; sensory organ dissection and examination; additional genetic laboratory exercises.

- I. Introduction
 - A. Laboratory Safety Procedures (as described in Life Science Department's Laboratory Safety Procedures Handout)
 - B. Library Research Techniques
 - C. Metric Measurements and Conversions
- II. Scientific Process
 - A. Process of Investigation
 - B. Data Analysis/Graphing
- III. Light Microscopy
 - A. Microscope Handling and Operation
 - B. Investigating Cell Structure
- IV. Enzymes
 - A. Nature of Enzymatic Reactions
 - B. Influences on Enzymatic Activity
- V. Diffusion/Osmosis
 - A. Solutions: Solutes, Solvents, Tonicity
 - B. Factors influencing Diffusion
- VI. Energy
 - A. Glycolysis
 - B. Anaerobic and Aerobic Respiration
- VII. DNA
 - A. Structure of DNA
 - B. DNA, RNA, and Protein Synthesis
 - C. DNA Extraction/Gel Electrophoresis
- VIII. Cell Division
 - A. Chromosomes, Ploidy
 - B. Cell Division Involving Mitosis
 - 1. Mitosis in Growth and in Reproduction
 - 2. Phases of Mitosis
 - 3. Cell Cycle
 - C. Cell Division Involving Meiosis
 - 1. Phases of Meiosis
 - 2. Cell Cycle
- IX. Human Genetics
 - A. Monohybrid, Dihybrid Crosses
 - B. Pedigrees
- X. Sensory Laboratory: sensory structures, functions, nervous pathways
 - A. Sensory Receptors
 - B. Reflexes
- XI. Cardiovascular Laboratory
 - A. Heart Sounds
 - B. Heart Rate
 - C. Blood Pressure Measurement
 - D. The Electrocardiogram
- XII. Respiratory Laboratory
 - A. Respiratory Rate
 - B. Diagnostic Lung Volumes

- XIII. Principles of Natural Selection
- XIV. Ecology. One of the following:
 - A. Population Dynamics
 - B. Statistical Methods

REQUIRED READING:

Sourbeer, Dan, et al. General Biology Laboratory Manual, self-published, latest edition.

SUGGESTED READING: none

REQUIRED WRITING:

Laboratory quizzes will be primarily short answer. Laboratory reports or journals will be completed by the students.

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.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

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

DISTANCE LEARNING:

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

Yes No

If yes, check all that apply:

- 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 student 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:

All laboratory work will be evaluated either by laboratory quizzes, laboratory reports, and/or journals.

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

Yes ____ No X 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:

CONTACT PERSON: Sara Thompson, x2533

SIGNATURES ON FILE