

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u> Biology </u>
COURSE RUBRIC AND NUMBER	<u> BIOL 1108 </u>
COURSE TITLE	<u> Introductory Biology Laboratory </u>
COURSE CREDIT HOURS	<u> 1 0 2 </u>
	Credits Lec Lab

I. Catalog Description

Accompanies BIOL 1308, Biology for Non-Science Majors I laboratory-based course. Laboratory activities will reinforce a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. **Corequisite: BIOL 1308. (0:2). Lab fee.**

II. Course Objectives

A. Unit I: Science as a Process

1. Develop competence in lab safety procedures and practices
2. Students should acquire experience in the use of the following science process skills:
 - a. Observation
 - b. Recording descriptive and quantitative data
 - c. Microscope use
 - d. Graphing
 - e. Measuring
 - f. Hypothesis formation
 - g. Quantitative analysis, including descriptive statistics
 - h. Experimental design
 - i. Scientific report writing/communication (*e.g.* posters)
3. To be able to understand and apply the scientific method
4. Perform different assays to test for the presence of macromolecules
5. Understand viruses in relationship to life forms and public health concerns
6. Use microscopy to differentiate between prokaryotic and eukaryotic cell structure and function
7. Understand the concepts of osmosis, diffusion, and tonicity through simulation and experimentation of eukaryotic cells

B. Unit II: Cell Cycle and Genetics

1. Understand the structure of DNA by extracting and examining DNA from living cells
2. Identify and illustrate the stages of mitosis and meiosis
3. Interpret karyotypes and recognize disorders and diseases associated with mitotic and meiotic errors
4. Learn how to construct Punnett Squares to predict the genotype and phenotype ratios based on monohybrid and dihybrid crosses.
5. Perform a DNA Fingerprinting exercise to introduce biotechnology

C. Unit III: Evolution and the Diversity of Life

1. Simulate the process of evolution by natural selection in order to understand the role of fitness in terms of survival and reproduction.

2. Use outdoor field activity to survey eukaryotic (primarily plant and animal) diversity in relation to environmental factors.

D. Ecology and Conservation Biology

1. Describe conservation biology with respect to its role in today's politics and society and the biodiversity crisis.

III. THECB Learning Outcomes (ACGM)

1. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
5. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
6. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
7. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
8. Identify the importance of karyotypes, pedigrees, and biotechnology.
9. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
10. Analyze evidence for evolution and natural selection.

IV. Evaluation

- A. Pre-assessment not required
- B. Post-assessment
 1. Grades are based on practicals, group activities, presentations. The evaluation methods, frequency and individual weight of each assessment method is to be determined by the instructor.
- C. Grading Scale:
90-100 % = A
80- 89 % = B
70- 79 % = C
60- 69 % = D
below 60 % = F

V. Disability Statement (Americans with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024)

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.