



El Camino College

COURSE OUTLINE OF RECORD - Official

I. GENERAL COURSE INFORMATION

Subject and Number: Biology 101H
Descriptive Title: Honors Principles of Biology I

Course Disciplines: Biological Sciences

Division: Natural Sciences

Catalog Description: This honors course, intended for students in the Honors Transfer Program, is a survey of eukaryotic organisms, their evolution and ecology. The student will have a thorough exposure to plant and animal anatomy and physiology, and will utilize animal dissection in the lab. Students will be expected to complete a project that includes hypothesis, prediction, experimentation, and presentation of results. This course is one of three courses in the biology series designed for biology majors, including those students planning to pursue a career in medicine, dentistry, or other life sciences. This course is enriched through extensive rigorous reading, writing, and research assignments.

Note: Students may take either Biology 101 or Biology 101H. Duplicate credit will not be awarded for Biology 101 and Biology 101H.

Conditions of Enrollment: Prerequisite

Chemistry 4 or
Chemistry 4H
with a minimum grade of C in prerequisite

or

equivalent

Recommended Preparation

Course Length: Full Term Other (Specify number of weeks):
Hours Lecture: 3.00 hours per week TBA
Hours Laboratory: 6.00 hours per week TBA
Course Units: 5.00

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: Effective Date: 12/19/2016
Transfer UC: Effective Date: Proposed

General Education:

El Camino College: **1 – Natural Sciences**
Term: Fall 2017 Other: _____

CSU GE: **B2 - Life Science**
Term: _____ Other: Proposed
B3 - Laboratory Sciences
Term: _____ Other: Proposed

IGETC: **5B - Biological Science with a Lab**
Term: _____ Other: Proposed
5C - Science Laboratory
Term: _____ Other: Proposed

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. The student will understand and apply principles of the scientific method and recognize an idea based on reproducible evidence.
2. The student will be able to use the compound and dissecting to observe cells and microorganisms.
3. The student will use the basic energy principles to explain the energy flow in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships between autotrophs and heterotrophs in ecosystems.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Characterize interactions among organisms and between organisms and environment.
Multiple Choice
2. Discriminate among populations dynamics, community structure, and ecosystem functions.
Objective Exams
3. Outline major events in the evolutionary history of life.
Multiple Choice
4. Explain the principles and mechanisms of evolution at the micro and macro levels.

Homework Problems

5. Compare and contrast representatives phyla of protists.

Matching Items

6. Recognize the various protist, fungal, plant, and animal phyla viewed in the lab.

Other exams

7. Compare and contrast the life cycles of the fungal phyla.

Completion

8. Diagram and explain the alteration of generations in the life cycle of plants.

Homework Problems

9. Identify samples of flower, fruit, and seed types.

Objective Exams

10. Describe the various plant tissues and organs.

Written homework

11. Explain water and food transport in plants.

Objective Exams

12. Discuss the role of phytohormones in plant growth.

Matching Items

13. Identify and describe animal structures and relate them to functions.

Objective Exams

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	6	I	Evolution A. History of Life B. Natural Selection C. Systematics and Phylogeny
Lecture	10	II	Ecology A. Populations and Communities B. Energy Flow and Natural Resources 1. Carbon Cycle 2. Nitrogen Cycle 3. Water Cycle 4. Other nutrients C. Biomes D. Pollution
Lecture	4	III	"Protists" A. Supergroups within Eukarya 1. Diplomonads 2. Archaeplastida 3. Opisthokonta
Lecture	4	IV	Fungi A. Evolution B. Ecological variances C. Life cycle D. Spore types

			E. Reproduction
Lecture	14	V	Plants A. Non-vascular and Seedless Plants 1. Liverworts 2. Hornworts 3. Mosses B. Vascular Seedless Plants 1. Quillworts and other Lycopods 2. Ferns and Their Allies C. Seed Plant Diversity, Ecology, and Reproduction 1. Cycadophyta 2. Ginkgophyta 3. Pinophyta 4. Gnetophyta 5. Anthophyta (Angiosperms) D. Angiosperm Anatomy E. Angiosperm Physiology
Lecture	16	VI	Animals A. Animal Tissues 1. Ectoderm 2. Mesoderm 3. Endoderm B. Animal Organ Systems 1. Skin/Integument 2. Cardiovascular 3. Respiratory 4. Skeletal 5. Reproductive 6. Excretory 7. Digestive 8. Endocrine 9. Muscle 10. Nervous
Lab	4	VII	Microscope A. Compound Microscope 1. Letter "e" Slide 2. Silk Fibers Slide B. Dissecting Microscope
Lab	8	VIII	Research Methods A. Strategy B. Research Projects C. Data D. Preliminary Reports E. Group Projects
Lab	14	IX	Ecology
Lab	7	X	Protists and Supergroups A. Diplomonads B. Alveolata C. Ciliata D. Amoebozoa E. Archaeplastida F. Opisthokonta
Lab	7	XI	Fungi A. Ascomycota B. Zygomycota C. Chytridiomycota D. Glomeromycota

			E. Basidiomycota F. Lichens G. Mycorrhizal Assemblages
Lab	28	XII	Plants A. Seed plants B. Plant anatomy C. Plant physiology C. Plant hormones D. Stimuli responses E. Phytochemistry
Lab	40	XIII	Animals A. Diversity of phyla and diploblastic or triploblastic tissue types B. Phylum overview (9 -15 phyla) C. Phylum Porifera D. Phylum Cnidaria E. Phylum Platyhelminthes F. Phylum Nematoda G. Phylum Annelida H. Phylum Mollusca I. Phylum Arthropoda J. Phylum Echinodermata K. Phylum Hemichordata L. Phylum Chordata
Lecture	0	XIV	
Total Lecture Hours		54	
Total Laboratory Hours		108	
Total Hours		162	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

Identify the role of producers various consumers and decomposers in terrestrial and aquatic ecosystems.

Write a 1-2 page paper with a minimum of 2 primary sources.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Use lecture and laboratory to develop knowledge of evolutionary trends and comparative anatomy, such as among the two, three, or four chambered heart designs in vertebrate animals.

Compare and contrast organ development and function in immature and adult

stage of Amphibia and Mammals, particularly through dissection of frogs and fetal pigs.

Write a 1-2 page paper with a minimum of 2 primary sources.

2. 1. Use the Natural Selection mechanism to help understand and explain the support of Evolution as a theory; use case study examples to provide support of Evolution and refute claims of "Darwin's Critics" in textbooks and/or supplemental handouts.

Write a minimum 3 page paper with a minimum of 3 primary sources.

2. Perform other examples of reading peer-reviewed journals, analyzing data, and short papers to synthesize conclusions.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Essay exams

Objective Exams

Embedded questions

Quizzes

Reading reports

Written homework

Laboratory reports

Field work

Homework Problems

Term or other papers

Multiple Choice

Completion

Matching Items

True/False

Other (specify):

1. Use a dichotomous key to distinguish between the types of fleshy and dry fruits upon examination of samples in the lab.

2. Dissect a frog and a fetal pig and identify homologous structures based on your observations.

Presentation

V. INSTRUCTIONAL METHODS

Demonstration

Discussion

Field trips

Group Activities

Internet Presentation/Resources

Laboratory

Lecture

Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study

Answer questions

Required reading

Problem solving activities

Written work

Observation of or participation in an activity related to course content

Other (specify)

Group laboratory project

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Dynamic Books/Sapling/MacMillan Learning. Principles of Biology. 1st ed. MacMillan, 2015.

Vodopich and Moore. Biology Laboratory Manual. 10th ed. McGraw-Hill, 2013.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Chemistry-4 or	Standard Requisite
Course Prerequisite Chemistry-4H or	Standard Requisite
Non-Course Prerequisite	

B. Requisite Skills

Requisite Skills
Students will need to have a basic chemistry understanding. CHEM 4 - Utilize the language of chemistry, including vocabulary, symbols, formulas, and equations. CHEM 4 - Compare and contrast physical properties, physical changes, chemical properties, and chemical changes.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Non-Course Recommended Preparation	It is advised that students are able to read and effectively analyze college level texts, and have the ability to write a paper that persuasively proves an original thesis. If students are eligible for English 1A they are more likely to be successful in this course.

D. Recommended Skills

Recommended Skills
Students will have higher success if they can read and write at college level. ENGL 1A - Read and apply critical-thinking skills to numerous published articles and to college-level, book-length works for the purpose of writing and discussion. ENGL 1A - Compose multi-paragraph, thesis-driven essays with logical and appropriate supporting ideas, and with unity and coherence.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Thanh-Thuy Bui on 12/10/2015.

BOARD APPROVAL DATE: 12/19/2016

LAST BOARD APPROVAL DATE:

Last Reviewed and/or Revised by Thanh-Thuy Bui on 03/11/2016

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