UCONN COURSE SYLLABUS

UCONN BIOL 1107 806L : Principles of Biology I
UCONN BIOL 1108 807L: Principles of Biology II
Jamie Cosgrove
Christian Heritage School
Fall 2014 and Spring 2015

UCONN COURSE DESCRIPTION

BIOL 1107: Principles of Biology I

May be taken in either order. Four credits. A course in high school level chemistry or concurrent enrollment in CHEM 1127 are recommended for students enrolling in 1107. Designed to provide a foundation for more advanced courses in Biology and related sciences. Topics covered include molecular and cell biology, animal anatomy and physiology (BIOL 1107). Laboratory exercises in BIOL 1107 include dissection of preserved animals.

BIOL 1108: Principles of Biology II

May be taken in either order. Four credits. A course in high school level chemistry or concurrent enrollment in CHEM 1127 are recommended for students enrolling in 1107. Designed to provide a foundation for more advanced courses in Biology and related sciences. Topics covered include ecology, evolution, genetics, and plant biology, (BIOL 1108).

REQUIRED TEXT

Campbell Biology, 10th Edition, 2013

LEARNING OBJECTIVES

A. Be able to design and conduct scientific experiments (with positive and negative controls) and identify dependent and independent variables. Students will use laboratory equipment safely, and communicate their results in formal lab reports. Students will be proficient in using equipment such as micropipets and a microcentrifuge. Students will perform experiments such as DNA Fingerprinting and ELISA assays.

B. Understand chemistry and biochemistry as it applies to life processes. Includes atomic structure, molecular bonding, carbon based molecules, metabolic processes including photosynthesis and cellular respiration. Recognize different molecules as carbohydrates, lipids, proteins, and DNA and explain how they are linked through dehydration synthesis or broken down by hydrolysis.
C. Understand cell structure and function- including cell membrane permeability and a discussion of the fluid-mosaic model. Understand the cell theory.
D. Understand mitosis and meiosis and explain what results when mutations and nondisjunction occur.
E. Understand and solve Mendelian genetics problems involving monohybrid, dihybrid, and trihybrid traits. Be able to recognize when gene linkage is involved. Research genetic disorders and explain the different genes involved in specific disorders.
F. Understand and explain the Central Dogma of biology- DNA to RNA to Protein. Students will be able to decode DNA and write the amino acids called for by that particular strand of DNA. Explain how genes are regulated, specifically with the lac and trp operons.
G. Understand the relationship of energy and matter through photosynthesis and cellular respiration. Understand the light and dark reactions of photosynthesis, as well as glycolysis, Krebs cycle, electron transport, and chemiosmosis. Students will be able to explain proton motive force and what is happening with the electron transport chain
H. Understand biological classification system including the 3 domains and the 5 kingdoms. Understand how major animal phyla are classified by major characteristics.
I. Understand evolution as it is presented by secular universities
J. Understand basic human anatomy and physiology including digestive, reproductive, skeletal, muscular, nervous, and immune systems.
K. Understand plant diversity, form, and function. Be able to identify plants based on cross-sectional views and characteristics
L. Understand relationship between animals and their environment.

GRADING

We will have approximately 3 tests per course (Bio 1107 and Bio 1108). Exams count as 65% of the quarter grade, while lab activities count as 35% of the quarter grade. There will be a final exam from UConn each semester, which will constitute 15% of the final grade (85% of the grade is made up of the exam and lab grades).

- NOTE: “Extra credit” assignments are NOT permitted.

***You may notice that your high school grade and UConn grade differ. It is possible that two different grades can be awarded for the same course. Your high school grade is determined by your high school. Your UConn course grade is determined by the grading rubric set by the University department

ASSIGNMENT SUMMARY AND COURSE CALENDAR

UConn Biology 1107/1108 Pacing Guide

Course: BIO 1107 Text: Campbell 10th Edition Grade Level: 11/12 Teacher: Jamie Cosgrove

August 2014 | September 2014 | October 2014 | November 2014 | December 2014 | January 2015

S/S	M	Tu	W	Th	F		S/S	M	Tu	W	Th	F		S/S	M	Tu	W	Th	F		S/S	M	Tu	W	Th	F		S/S	M	Tu	W	Th	F		S/S	M	Tu	W	T	F

Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages
Chemistry, Water (Chapters 2-4)	Biochemistry (Chapter 5) Prokaryotes Eukaryotes Viruses (Chapters 6, 27, 19) Metabolism Cell Respiration (Chapters 8,9)	Cell Membranes Transport Cell Communication (Chapters 7, 11) Cell Cycle Mitosis Meiosis (Chapters 12,13)	DNA/RNA Protein Synthesis (Ch 16, 17, 18) Intro to Animals Muscular Nutrition/Digest. Circulation Cardiovascular (40, 41, 42)	Animal Dev. Osmoreg Excretion Reproduction (44, 46, 47)	Nervous System Endocrine Sys Immune Sys (43,45, 48, 49)
Laboratory Water Demos Enzyme Catalysis	Laboratory Gram Staining Cell Lab Yeast Anaerobic Respiration	Laboratory Diffusion/Osmosis Mitosis/Meiosis Slides	Laboratory Protein Synthesis Dry Lab Cardiovascular Lab	Laboratory Kidney simulation lab	Laboratory Daphnia- effects of drugs ElSA Assay to test for disease
Tests/Dates	Tests/Dates (Chapters 2-6, 19, 27) End of Sept	Tests/Dates (Chapters 7-9, 11) End of October	Tests/Dates (Chapters 12, 13, 16, 17, 18) End of November	Tests/Dates	Tests/Dates Chapters 40-49 Mid January before Final

ECE Biology 1107/1108 Pacing Guide

Course BIOL 1108 Text: Campbell 10th Edition Grade Level 11/12 Teacher: Jamie Cosgrove

January 2015						February 2015						March 2015						April 2015						May 2015						June 2015					
S/S	M	Tu	W	Th	F	S/S	M	Tu	W	Th	F	S/S	M	Tu	W	Th	F	S/S	M	Tu	W	Th	F	S/S	M	Tu	W	Th	F	S/S	M	Tu	W	T	F

Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages	Unit Title/Chapters/Pages
Mendelian Genetics and Biotechnology (Chapters 14, 15, 20)	Plants: Structure and Function, Growth, Leaves (Chapter 6, 35, 36) Photosynthesis (Chapter 10) Begin Plant Diversity	Plant Diversity, Seed Plants, Angioisperms, Plant Response (Ch 39, 30, 38, 39) Protists and Fungi (Ch 28, 31)	Origin of Species, Speciation, Competition (Ch 24, 51, 54) Animal Behavior (Ch 51)	Population Ecology Animal Diversity Invertebrates Vertebrates (Ch 32-34, 53) Ecology Ecosystems (Ch 52, 55)	
Laboratory Karyotyping Gel Electrophoresis Plant Genetics- Dihybrid crosses	Laboratory Plant Structure Seedling germination	Laboratory Transpiration Lab/Potometer	Laboratory Animal Behavior- Isopods Evolution Discussion	Laboratory Dissections	Laboratory
Tests/Dates Genetics	Tests/Dates Plant Structure/Function and Photosynthesis	Tests/Dates	Tests/Dates Plant Diversity, Protists, Fungi, Origin of Species	Tests/Dates Ecology/Animals	Tests/Dates

COURSE POLICIES

Students are required to be in class on time. If a student misses a lab, they must attend the scheduled make-up lab with the teacher on the assigned day. It is not acceptable to miss a make-up lab. Missing a make-up lab will result in lost credit from UConn.
Late work will be penalized 20% for each day that it is handed in late
Plagiarism will result in a grade of "0" and a referral to administration.
Homework Assignments:

- Students are usually given homework assignments designed to either prepare for upcoming laboratory exercise or to reinforce the material learned the previous laboratory exercise.

Laboratory Reports:

- ECE Biology students are required to complete at least one (1) formal writing assignment during EACH course to gain experience with the scientific method and scientific writing as well as compete several smaller Results/Writing assignments

Disclaimer: I reserve the right to change this syllabus at any time