

BIOL 110

Basic Concepts and Biodiversity

Sample Syllabus

Description

This course is a study of the evolution of the major groups of organisms including the fundamental concepts of biology. The goal of this course is to introduce you to fundamental concepts that are common to all organisms and to explore the biological diversity of life on Earth. Biology 110 is intended for students who need a majors-level introductory biology course and is not the best option for students who are looking for a general education course in science.

Objective

Biology 110 is a four-credit course. The course will utilize web-based tutorials and laboratory sessions. The goal of this course is to introduce you to fundamental concepts that are common to all organisms and to explore the biological diversity of life on Earth.

Outline

1	Overview, Life and Natural Selection
2	Carbon and Life
3	Antiquity of Life
4	Prokaryotes I - Cellular and Genetic Organization
5	Prokaryotes II - Structure and Function
6	Prokaryotes III - Evolution and Early Metabolism
7	Subcellular Architecture of the Eukaryotic Cell

8	Protists I - Protists with Modified Mitochondria, Kingdoms Euglenozoa and Alveolata
9	Protists II - Kingdoms Stramenopila, Rhodophyta, Chlorophyta, and the Slime Molds
10	Mitosis
11	Heredity and Life Cycles
12	Fungi I - Evolution and Diversity, Phyla Chytridiomycota and Zygomycota
13	Fungi II - Phyla Ascomycota and Basidiomycota
14	Animals One - Phylogeny and Diversity; Animals without Body Cavities - Parazoa, Radiata, Acoelomates
15	Animals Two - Animals with Body Cavities: Pseudocoelomates and Protostome Coelomates
16	Animals Three - Animals with Body Cavities: Deuterostomes - Echinoderms and Chordates
17	Energy I - Thermodynamics
18	Energy II - Cellular Respiration (Glycolysis)
19	Energy III - Cellular Respiration (Krebs Cycle and Electron Transport Chain)
20	Energy IV - Photosynthesis (Light-dependent Reactions)
21	Energy V - Photosynthesis (Calvin Cycle)
22	Plants I - Evolution and Diversity
23	Plants II - Vascular Non-flowering Plants
24	Plants III - Vascular Flowering Plants
25	Mendel and Modern Genetics
26	Predicting Phenotypes and Genotypes
27	The Complex Expression Patterns of Multiple Alleles

28	Pedigree Analysis
29	Chromosome Behavior and Sex Chromosomes
30	Chromosome Behavior and Gene Linkage
31	DNA Replication
32	From Gene to Protein
33	Genes in Populations
34	Genetic Change in Populations
35	Genetics and Natural Selection

Mastering Biology Access

Mastering Biology is an online homework system that will be used extensively during the course. Information about registering for Mastering Biology is posted on Canvas. Please note: You can purchase an e-book version of the textbook through the Mastering Biology website (please see information about the optional textbook below).

Textbook (Optional)

Textbook - Reece, J et al. 2014. Campbell Biology. Tenth Edition. Pearson Benjamin Cummings, San Francisco, CA. The prior edition can also be used. The textbook is available in both electronic (etext) and hardcover formats. The textbook is not required but some students have found it to be a valuable supplement to the online tutorials to the course.

Online Labs

Late Nite Labs is an online laboratory software program. Information about registering for Late Nite Labs is posted on Canvas.

Grade Scale

Lecture material counts for 730 points and lab material counts for 200 points for a total of 930 points. If you do not pass lab (your score is less than 60%), you will not pass the course, regardless of your grade in the lecture portion of the class. The grading scale (in points) is:

Letter Grade	Points
A	855-930
A-	837-854
B+	800-836
B	772-799
B-	744-771
C+	697-743
C	651-696
D	558-650
F	< 558

Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

Accommodating Disabilities

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The [Student Disability Resources \(SDR\) website](#) provides contact information for every Penn State campus. For further information, please visit [Student Disability Resources website](#).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: [See documentation guidelines](#). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

Counseling and Psychological Services

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

- [Counseling and Psychological Services at University Park \(CAPS\)](#): 814-863-0395
- [Counseling and Psychological Services at Commonwealth Campuses](#)
- Penn State Crisis Line (Available 24 hrs, 7 days a week): 877-229-6400
- Crisis Text Line (Available 24 hrs, 7 days a week): Text LIONS to 741741

Educational Equity / Report Bias

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the [Report Bias website](#).