

Course Last Updated 02/06/2024



General Biology with Laboratory

Section I: Course Overview

Course Code: BIO110BCN

Subject Area(s): Life Science

Prerequisites: Basic knowledge of math and science

Language of Instruction: English

Total Contact Hours: 60

Credits: 4

Course Fees: None

Course Description

This course introduces a sound understanding of the structure, function, evolution and diversity of living organisms and the interactions between them. A particular emphasis will be given to the links between fundamental biological processes and current human activities, especially those related to the sustainable management of the environment.

Related to the theoretical part of this course, laboratory exercises have been designed to explore proper lab technique, cell structure and chemistry, cellular respiration, photosynthesis and genetics, among others.

Learning Objectives

Upon successful completion of this course, students are able to:

- Classify living organisms according to their characteristics on a macroscopic scale.
- Demonstrate proper laboratory safety and technique.

- Communicate scientific findings effectively both orally and through concise and coherent written lab reports.
- Apply the scientific method to solve basic biological problems.

Section II: Instructor & Course Details

Instructor Details

Name: TBA

Contact Information: TBA

Term: TBA

Course Day and Time: TBA

Office Hours: TBA

Grading & Assessment

The instructor assesses students' mastery of course learning objectives by using the forms of assessment below. Each of these assessments is weighted toward the final grade. The Assessment Overview section provides further details for each.

Engagement - 20%

Lab Report - 15%

Immune Response Reflection - 5%

Active Learning Reflection - 5%

Midterm Exam - 15%

Biodiversity Report - 10%

Biomes Group Presentation - 15%

Final Exam - 15%

Assessment Overview

This section provides a brief description of each form of assessment listed above. Forms of assessment may be slightly modified in the term syllabus.

Engagement (20%): Students are expected to be engaged in class, to have read the CEA CAPA Engagement Policy, and to understand the [Class Engagement Rubric](#) that outlines how engagement is graded.

Lab Reports (15%): Students will submit a scientific lab report after each lab session. Each report should include a purpose statement, summary of the methods employed, data collected, and a

thorough explanation of the results. Further instruction regarding format, content, and style will be provided in class.

Immune Response Reflection (5%): Students will submit a reflection regarding the Immune Response and Viruses reading assignment and will present their findings independently to the class. Further instruction will be provided in class.

Active Learning Reflection (5%): Following the active learning activity students will submit a reflection that highlights their observations made during the visit and any connections they made to content that has been covered in the course.

Biodiversity Report (10%): This report will provide a structured opportunity to connect concepts covered in the classroom to the biological knowledge acquired about the Spanish National Parks and biodiversity. This is a cumulative report and will be discussed during class.

Biomes Group Presentation (15%): Students will study and present in groups the main biomes on Earth and the basic characteristics that allow students to identify and describe them. Likewise, the biomes presented in this unit are only those with clearly distinctive characteristics, landscapes, and types of communities that inhabit them.

Midterm & Final Exams (30%): These are intended to assess your comprehension of the core concepts from the course, and will draw on lectures, assigned readings, and classroom discussions. The format includes a combination of matching terms with definitions, short answers, and essay questions. Unlike the experiential forms of assessment, there are clearly defined correct and incorrect answers, allowing assessment of the degree to which you have successfully mastered the essential content from the course.

Active Learning

Experiential learning is an essential component of education abroad, and participation in field studies is a required part of coursework. In this course, students explore the city in which they are studying using a variety of methods. This provides the opportunity to gain nuance and perspective on the host context and course content, as well as to collect information and resources for assigned papers, projects, and presentations.

- Visit to Natural History Museum
- Visit to Life Science Museum

Readings and Resources

The below readings and resources are representative of what will be assigned as required in this course, but may vary slightly in the term syllabus.

All students are given access to the online library of the University of New Haven (UNH), accessible [here](#), and are expected to comply with [UNH Policies](#) regarding library usage.

Wherever possible, required readings are made accessible through the online library or Canvas. Students are responsible for obtaining all required readings.

Each course utilizes Canvas as its LMS. Students are expected to check Canvas regularly for updates and deadlines. Canvas is also the primary platform for contacting your instructor in case of questions or concerns about the course.

Required

Reece, J. B., Urry, L. A., & Cain, M. L. (2020). Campbell biology. Pearson.

Course Calendar

Session 1	
Topics	Course Introduction: Review Syllabus, Classroom Policies
Activity	Course Overview Discussion: What criteria could you use to classify the living organisms?
Readings & Assignments	Reading: Evolution, the Themes of Biology, and Scientific Inquiry (pages from 2-9)

Session 2	
Topics	Diversity of Life: First approach to the previous knowledge Classification and Evolution
Activity	In class activity: Phylogenetic classification Evidence of evolution
Readings & Assignments	Assignment: Biodiversity report Reading: Evolution accounts for the unity and diversity of life (Pages from 11-15)

Session 3	
Topics	History of the theories of evolution & Modern theory of evolution
Activity	Questioning the fixity of species through G. Cuvier, JB Lamarck and Darwin The origin of the species: Natural selection, origin of variability and adaptations Reproductive barriers Active Learning Activity
Readings & Assignments	

Session 4	
Topics	Genetics & Heredity
Activity	Principles of heredity, heredity and probability, heredity and genetics, meiosis, beyond Mendel's Law of Inheritance, Sex-Determination systems and Genetic Disorders
Readings & Assignments	Reading: Genetics –Meiosis, Mendel and the Gene Idea (253-290) Assignment: Life Science Museum Activity

Session 5	
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Topics	Life Processes: Nutrition
Activity	Organic and inorganic nutrients, obtaining energy from nutrients, energy for cells Lab Experience I
Readings & Assignments	Reading: Animal Nutrition (page 898) Assignment: Submit Lab report I

Session 6	
Topics	Life Processes: Nutrition
Activity	Photosynthesis and Energy, Cellular respiration
Readings & Assignments	Readings: about SI units of mass, applying direct proportionality Photosynthesis (page 187)

Session 7	
Midterm Exam	

Session 8	
Topics	Life processes: Responses to the Environment
Activity	Coordination, responses and behavior Discussion: Do living organisms play a role?
Readings & Assignments	Reading: Interpretation of simple data tables and graphs. + Cell communication (page 212)

Session 9	
Topics	Introduction to the Cell
Activity	Examining some samples of both living organisms and nonliving forms Lab Experience II
Readings & Assignments	Reading: The Cell (page 92) Assignment: Submit Lab report II

Session 10	
Topics	Immune Response: Vaccines and society
Activity	Infectious diseases Discussion: How do vaccines work?
Readings & Assignments	Reading: Viruses (Page 398) + The Immune System (page 952) Class assignment: Immune Response Reflection

Session 11	
Topics	Introduction to ecosystems
Activity	Abiotic and biotic factors, interactions within a population, habitat and ecological niche, food chains, the flow of matter and energy Visit to the Aquarium

Readings & Assignments	Reading: Ecosystems and Restoration Ecology (Page 1238) Submit Biodiversity Report
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Session 12	
Topics	Biomes
Activity	Terrestrial and aquatic biomes with clearly distinctive characteristics, landscapes, and types of communities that inhabit them. Biomes group presentation
Readings & Assignments	Reading: Terrestrial and aquatic biomes (From page 1171 to 1177) Assignment: Biomes group presentation

Session 13	
Group Presentations (Continued)	

Session 14	
Final Exam Review	

Session 15	
Fina Exam	

Section III: Academic Policies and Standards

Academic Policies

Students are expected to review and understand all CEA CAPA student policies, including our [Academic Policies](#) and [Engagement Policy](#). CEA CAPA reserves the right to change, update, revise, or amend existing policies and/or procedures at any time. Additional requirements that may be associated with a specific course or program are addressed in the term syllabus.

Student Learning & Development Objectives

CEA CAPA has identified [Student Learning and Development Objectives \(SLDOs\)](#) for all programs in all locations: content in context, navigating differences, power and equity, critical thinking and intellectual curiosity, career and professional development, and sustainability and migration. These are meta-level learning objectives that transcend coursework and are infused across all elements of program delivery, beyond specifics of course offerings, addressing student learning holistically and framing it a larger learning context.