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
Recommended Credits: 4

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 will be 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 scientific method to solve basic biological problems.

PRE-REQUISITE:

Basic knowledge of math and statistics.

SECTION II: Instructor & Course Details

INSTRUCTOR DETAILS

Name: TBA
Contact Information: TBA
Term: SUMMER

ATTENDANCE POLICY

This class will meet twice weekly for 95 minutes each session. All students are expected to arrive on time and be prepared for the day's class session.

CEA enforces a mandatory attendance policy. You are therefore expected to attend all regularly scheduled class sessions, including any field trips, site visits, guest lectures, etc. that are assigned by the instructor. The table below shows the number of class sessions you may miss before receiving a grade penalty.

ALLOWED ABSENCES – SEMESTERS		
Courses Meeting X day(s) Per Week	**Allowed Absence(s)**	**Automatic Failing Grade at Xth Absence**
Courses meeting **2** day(s) per week	**2** Absences	**8th** Absence

For every additional absence beyond the allowed number, your final course grade will drop down to the subsequent letter grade (ex: A+ to A). As a student, you should understand that the grade penalties will apply if you are marked absent due to tardiness or leaving class early. In the table below, you will find the grade penalty associated with each excessive absence up to and including automatic course failure.

ATTENDANCE DOCKING PENALTIES								
Absence	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
Penalty	**No Penalty**	**No Penalty**	**0.5 Grade Docked**	**1 Grade Docked**	**1.5 Grades Docked**	**2 Grades Docked**	**2.5 Grades Docked**	**Automatic Failure**
HIGHEST POSSIBLE GRADE AFTER ATTENDANCE PENALTIES								
Grade	**A+**	**A+**	**A**	**A-**	**B+**	**B**	**B-**	**F**

CEA does not distinguish between excused and unexcused absences. As such, no documentation is required for missing class. Similarly, excessive absences, and the grade penalty associated with each, will not be excused even if you are able to provide documentation that shows the absence was beyond your control. You should

therefore only miss class when truly needed as illness or other unavoidable factors may force you to miss a class session later on in the term.

GRADING & ASSESSMENT

The instructor will assess your progress towards the above-listed learning objectives by using the forms of assessment below. Each of these assessments is weighted and will count towards your final grade. The following section (Assessment Overview) will provide further details for each.

Class Participation	15%
Lab Report	20%
Immune Response Reflection	5%
Life Science Museum Reflection	5%
Midterm Exam	15%
Biodiversity Report	10%
Biomes Group Presentation	15%
Final Exam	15%

The instructor will calculate your course grades using the CEA Grading Scale shown below. As a CEA student, you should understand that credit transfer decisions–including earned grades for courses taken abroad–are ultimately made by your home institution.

CEA GRADING SCALE			
Letter Grade	**Numerical Grade**	**Percentage Range**	**Quality Points**
A+	9.70 – 10.0	97.0 – 100%	4.00
A	9.40 – 9.69	94.0 – 96.9%	4.00
A-	9.00 – 9.39	90.0 – 93.9%	3.70
B+	8.70 – 8.99	87.0 – 89.9%	3.30
B	8.40 – 8.69	84.0 – 86.9%	3.00
B-	8.00 – 8.39	80.0 – 83.9%	2.70
C+	7.70 – 7.99	77.0 – 79.9%	2.30
C	7.40 – 7.69	74.0 – 76.9%	2.00
C-	7.00 – 7.39	70.0 – 73.9%	1.70
D	6.00 – 6.99	60.0 – 69.9%	1.00
F	0.00 – 5.99	0.00 – 59.9%	0.00
W	Withdrawal	N/A	0.00
INC	Incomplete	N/A	0.00

ASSESSMENT OVERVIEW

This section provides a brief description of each form of assessment listed above. Your course instructor will provide further details and instructions during class time.

Class Participation (15%): Student participation is mandatory for all courses taken at a CEA Study Center. The instructor will use the rubric below when determining your participation grade.

CLASS PARTICIPATION GRADING RUBRIC	
Student Participation Level	**Grade**
You make major & original contributions that spark discussion, offering critical comments clearly based on readings, research, & theoretical course topics.	**A+** (10.0 – 9.70)
You make significant contributions that demonstrate insight as well as knowledge of required readings & independent research.	**A/A-** (9.69 – 9.00)
You participate voluntarily and make useful contributions that are usually based upon some reflection and familiarity with required readings.	**B+/B** (8.99 – 8.40)
You make voluntary but infrequent comments that generally reiterate the basic points of the required readings.	**B-/C+** (8.39 – 7.70)
You make limited comments only when prompted and do not initiate debate or show a clear awareness of the importance of the readings.	**C/C-** (7.69 – 7.00)
You very rarely make comments and resist engagement with the subject. You are not prepared for class and/or discussion of course readings.	**D** (6.99 – 6.00)
You make irrelevant and tangential comments disruptive to class discussion. You are consistently unprepared for class and/or discussion of the course readings.	**F** (5.99 – 0.00)

Lab Reports (20%): 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.

Life Science Museum Reflection (5%): Following the visit to the Life Science Museum, 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 on an ongoing basis.

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 answer, 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.

EXPERIENTIAL LEARNING ACTIVITIES

CEA courses are designed to include a variety of experiential learning activities that will take you out of the classroom and allow you to explore your local, host city. These activities may include field studies, guest lectures and/or activities offered through our Academically Integrated Cultural Activities Program (AICAP). The following experiential learning activities are part of this course:

- Field studies:
    - Visit to the Life Science Museum
    - Visit to Aquarium

REQUIRED READINGS

Reading assignments for this course will come from the required text(s) and/or the selected reading(s) listed below. All required readings–whether assigned from the text or assigned as a selected reading–must be completed according to the due date assigned by the course instructor.

I. **REQUIRED COURSE MATERIALS**: The selected readings for this course are listed below. You will not need to purchase these readings; the instructor will provide these selected readings to you in class (either in paper or electronic format).

   A detailed reading handout will be given at the beginning of each Unit, which will help guide the students through the book.

    - Kelly Reece, Jane B.; Taylor, Martha R.; Simon, Eric J.; Dickey, Jean L.; Hogan (2020). *Campbell Biology*, 12th edition, Pearson: Hoboken, NJ.

ADDITIONAL RESOURCES

In order to ensure your success abroad, CEA has provided the academic resources listed below. In addition to these resources, each CEA Study Center provides students with a physical library and study areas for group work. The Academic Affairs Office at each CEA Study Center also compiles a bank of detailed information regarding libraries, documentation centers, research institutes, and archival materials located in the host city.

- **UNH Online Library**: As a CEA student, you will be given access to the online library of CEA's School of Record, the University of New Haven (UNH). You can use this online library to access databases and additional resources while performing research abroad. You may access the UNH online library here or through your MyCEA Account. You must comply with UNH Policies regarding library usage.
- **CEAClassroom – Moodle**: CEA instructors use Moodle, an interactive virtual learning environment. This web-based platform provides you with constant and direct access to the course syllabus, daily schedule of class lectures and assignments, non-textbook required readings, and additional resources. Moodle includes the normal array of forums, up-loadable and downloadable databases, wikis, and related academic support designed for helping you achieve the learning objectives listed in this syllabus.

During the first week of class, CEA academic staff and/or faculty will help you navigate through the many functions and resources Moodle provides. While you may print a hard copy version of the syllabus, you should always check Moodle for the most up-to-date information regarding this course. The instructor will use Moodle to make announcements and updates to the course and/or syllabus. It is your responsibility to ensure that you have access to all Moodle materials and that you monitor Moodle on a daily basis in case there are any changes made to course assignments or scheduling. To access Moodle: Please log-in to your MyCEA account using your normal username and password. Click on the "While You're Abroad Tab" and make sure you are under the "Academics" sub-menu. There you will see a link above your schedule that says "View Online Courses" select this link to be taken to your Moodle environment.

COURSE CALENDAR General Biology				
WEEK		**TOPICS**	**ACTIVITY**	**READINGS & ASSIGNMENTS**
1	Session 1	**Course Introduction:** Review Syllabus, Classroom Policies	**Course Overview** **Discussion:** What criteria could you use to classify the living organisms?	**Reading:** Evolution, the Themes of Biology, and Scientific Inquiry (pages from 2-9)
	Session 2	**Diversity of Life:** First approach to the previous knowledge **Classification and Evolution**	**In class activity:** Phylogenetic classification Evidence of evolution	**Assignment: Biodiversity report** **Reading:** Evolution accounts for the unity and diversity of life (Pages from 11-15)
	Session 3	**History of the theories of evolution & Modern theory of evolution**	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 **Visit to Life Science Museum**	**Reading:** In studying nature, scientists form and test hypotheses (Pages from 16-20) Theories in Science (Page 21)
2	Session 4	**Genetics & Heredity**	Principles of heredity, heredity and probability, heredity and genetics, meiosis, beyond Mendel's Law of Inheritance, Sex-Determination systems and Genetic Disorders	**Reading:** Genetics – Meiosis, Mendel and the Gene Idea (253-290) **Assignment: Life Science Museum Activity**
	Session 5	**Life Processes: Nutrition**	Organic and inorganic nutrients, obtaining energy from nutrients, energy for cells **Lab Experience I**	**Reading:** Animal Nutrition (page 898) **Assignment: Submit Lab report I**
3	Session 6	**Life Processes: Nutrition**	Photosynthesis and Energy, Cellular respiration	**Readings:** about SI units of mass, applying direct proportionality Photosynthesis (page 187)
	Session 7	**MIDTERM EXAM**		
4	Session 8	**Life processes: Responses to the**	Coordination, responses and behavior **Discussion:**	**Reading:** Interpretation of simple data tables and

The instructor reserves the right to make changes or modifications to this syllabus as needed

		Environment	Do living organisms play a role?	graphs. + Cell communication (page 212)
	Session 9	**Introduction to the Cell**	Examining some samples of both living organisms and nonliving forms **Lab Experience II**	**Reading:** The Cell (page 92) **Assignment:** **Submit Lab report II**
5	Session 10	**Immune Response: Vaccines and society**	Infectious diseases **Discussion**: How do vaccines work?	**Reading:** Viruses (Page 398) + The Immune System (page 952) **Class assignment:** Immune Response Reflection
	Session 11	**Introduction to ecosystems**	Abiotic and biotic factors, interactions within a population, habitat and ecological niche, food chains, the flow of matter and energy **Visit to the Aquarium**	**Reading:** Ecosystems and Restoration Ecology (Page 1238) **Submit Biodiversity Report**
6	Session 12	**Biomes**	Terrestrial and aquatic biomes with clearly distinctive characteristics, landscapes, and types of communities that inhabit them. **Biomes group presentation**	**Reading:** Terrestrial and aquatic biomes (From page 1171 to 1177) **Assignment:** Biomes group presentation
	Session 13	**FINAL EXAM**		

SECTION III: CEA Academic Policies

The policies listed in this section outline general expectations for CEA students. You should carefully review these policies to ensure success in your courses and during your time abroad. Furthermore, as a participant in the CEA program, you are expected to review and understand all CEA Student Policies, including the academic policies outlined on our website. CEA reserves the right to change, update, revise, or amend existing policies and/or procedures at any time. For the most up to date policies, please review the policies on our website.

Class & Instructor Policies can be found here
General Academic Policies can be found here