

BIOL 110 and L: Introductory Biological Science and Lab

Prerequisite(s): None

Credits: 4

I. Course Description

A survey of the principles of biology including biochemistry, cytology, histology, taxonomy, reproduction, genetics, ecology, and human anatomy and physiology.

II. Course Objectives

By the end of this course, students will:

- Describe the cellular foundation of life
- Describe the processes of metabolism
- Describe the phases of cell division
- Describe the genetic basis of inheritance
- Describe the basics of molecular biology and biotechnology
- Describe evolution and its processes
- Describe the diversity of life
- Describe animal structure and function
- Describe the basics of ecology

III. Course Textbooks and Reading Materials

Concepts of Biology by Samantha Fowler, Rebecca Roush and James Wise; OpenStax Textbook is available for free at the website below:

<https://cnx.org/contents/s8Hh0oOc@11.1:Pj8cW7X1@4/Introduction>

IV. Weekly Information

Module One – Week 1 **The Basics of Biology**

Objectives

At the end of this Module, you should be able to:

- Identify the themes and concepts of biology

- Describe the building blocks of molecules
- Describe the biological molecules
- Describe cell structure and function

Reading

[Chapter 1](#) Introduction to Biology

[Chapter 2](#) Chemistry of Life

[Chapter 3](#) Cell Structure and Function

Lectures

Chapters 1-3

Deliverables

Discussion 1: Introduce yourself

Assignments: Chapters 1 - 3

Labs: Understanding Experimental Design

Quiz 1

Module Two – Week 2 **Metabolism and Cellular Division**

Objectives

At the end of this Module, you should be able to:

- Describe the process of cellular respiration
- Describe the process of photosynthesis
- Describe the phases of cell cycle and mitosis

Reading

[Chapter 4](#) How Cells Obtain Energy

[Chapter 5](#) Photosynthesis

[Chapter 6](#) Reproduction at the Cellular Level

Lectures

Chapters 4-6

Deliverables

Discussion 2: Science News

Assignments: Chapters 4 - 6

Labs: Cellular Respiration Explored

Quiz 2

Module Three – Week 3

Genetic Inheritance and DNA

Objectives

At the end of this Module, you should be able to:

- Describe the phases of meiosis
- Describe Mendelian inheritance
- Describe DNA and its replication
- Describe the steps of gene expression

Reading

[Chapter 7](#) The Cellular Basis of Inheritance

[Chapter 8](#) Patterns of Inheritance

[Chapter 9](#) Molecular Biology

Lectures

Chapters 7 - 9

Deliverables

Discussion 3: Genetic Inheritance

Assignments: Chapters 7 - 9

Labs: Mendelian Pigs

Quiz 3

Module Four – Week 4

Biotechnology, Evolution, and Diversity of Life

Objectives

At the end of this Module, you should be able to:

- Explain the basic techniques to manipulate genetic material
- Describe the uses of biotechnology
- Describe the process of evolution through natural selection
- Describe how organisms are classified

Reading

[Chapter 10](#) Biotechnology

[Chapter 11](#) Evolution and Its Processes

[Chapter 12](#) Diversity of Life

Lectures

Chapters 10 - 12

Deliverables

Discussion 4: Evolution

Assignments: Chapters 10 - 12

Labs: Domesticating Dogs

Quiz 4

Module Five – Week 5**Microbes, Protists, Fungi, Plants and Animals****Objectives**

At the end of this Module, you should be able to:

- Describe the diversity of bacteria
- Describe the diversity of protists
- Describe the diversity of plants
- Describe the diversity of animals

Reading

[Chapter 13](#) Diversity of Microbes, Fungi, and Protists

[Chapter 14](#) Diversity of Plants

[Chapter 15](#) Diversity of Animals

Lectures

Chapters 13 - 15

Deliverables

Discussion 5: GMO

Assignments: Chapters 13 - 15

Labs: Flowers and Trees

Quiz 5

Module Six – Week 6**The Human Body****Objectives**

At the end of this Module, you should be able to:

- Explain the concept of homeostasis
- Describe the body systems: digestive, circulatory, respiratory, endocrine, musculoskeletal, and nervous systems
- Describe the characteristics of viruses
- Describe the immune system

- Describe animal reproduction
- Describe the steps of animal development

Reading

[Chapter 16](#) The Body's Systems

[Chapter 17](#) The Immune System and Disease

[Chapter 18](#) Animal Reproduction and Development

Lecture

Chapters 16 - 18

Deliverables

Discussion 6: Vaccinations

Assignments: Chapters 16 - 18

Labs: Action Potentials Explored

Quiz 6

Module Seven – Week 7 **Ecology, Ecosystems, and Conservation**

Objectives

At the end of this Module, you should be able to:

- Describe how a population is studied
- Describe the relationships within a community
- Describe the basic types of ecosystems on Earth
- Describe the biogeochemical cycles
- Define biodiversity
- Describe how biodiversity is decreased
- Describe how humans can contribute to conservation

Reading

[Chapter 19](#) Population and Community Ecology

[Chapter 20](#) Ecosystems and the Biosphere

[Chapter 21](#) Conservation and Biodiversity

Lectures

Chapters 19 - 21

Deliverables

Discussion 7: Conservation

Assignments: Chapters 19 - 21

Labs: Isle Royale

Quiz 7

V. Course Grading

Course Requirements (Weekly)

Each Module will be based on the inclusion and grading of the following segments: Discussion Boards, Assignments, Labs, and Quizzes.

Grading Scale and Assigned Letter Grades

Charleston Southern Online Undergraduate classes follow the following numerical and letter grading scale. Grades will be posted by the Sunday night following the closing of the Module. No grades will be given to students over the phone.

A = 90-100
B+ = 87-89
B = 80-86
C+ = 77-79
C = 70-76
D = 60-69
F = <60

Grade Determination:

Quizzes 35 %
Assignments 25 %
Discussion 15 %
Virtual Labs 25 %

Discussions:

Successful online learning requires active and meaningful participation in the Discussion Board Forum. Critical thinking, appropriate use of judgment and professional comments are required for all responses. Simple agreement or disagreement with a fellow student does not constitute a quality response. Student opinions are important but must be supported by relevant data obtained in the literature or text.

1. One initial discussion board post is due by the fourth day (Thursday @ 11:59 pm) of each weekly module and two response posts are due by the last day (Sunday @ 11:59 pm) of each weekly module.
 - a. Undergraduate Word Count Requirements:
 - i. Initial post must be >200 words
 - ii. Responses must be >150 words
 - b. Graduate Word Count Requirements:
 - i. Initial post must be >250 words
 - ii. Responses must be >200 words
2. Participation – Students must meet initial and response post deadlines to be eligible for full points. Late initial posts may be accepted with a 33% reduction in the overall score assessed for each day late. Two response posts are required. If only one is received, then the overall score will be reduced by 25%. If no response posts are received, then the overall score will be reduced by 50%.

- Students should be respectful and write in a proper and professional manner.

Please refer to the Discussion Board Rubric located within course syllabus for specific requirements and guidance on delivering a substantial discussion.

Undergraduate Discussion Board Rubric – Introduction (First week only)

Criteria	Minimal	Effective
Percent Possible: 0 or 100 Initial Post Introduction.	Percent Possible: 0 No post or did not follow instructions at all.	Percent Possible: 100 Posted following instructions.
Percent Possible: 0 or 100 Response Posts Welcome.	Percent Possible: 0 No post or did not follow instructions at all.	Percent Possible: 100 Posted following instructions.

Discussion Board Initial Post Rubric – Undergraduate

Initial Post Rubric	Content	Support & References	Mechanics & Length
Mastery 90-100%	<ul style="list-style-type: none"> Relevant and thought-provoking viewpoints Innovative and indicates a high level of thought High level of critical thought, analysis, and application of concepts and ideas 	<ul style="list-style-type: none"> Student cites 2 peer-reviewed sources in the body of the posts Proper APA format 	<ul style="list-style-type: none"> Post exceeds 200 words Very well written
Effective 80-89%	<ul style="list-style-type: none"> Advances the discussion and body of knowledge providing relevant, original thoughts to the question Conveys thoughts in a well-rounded manner that show understanding, critical thought, and application of concepts 	<ul style="list-style-type: none"> Student cites 2 peer-reviewed sources in the body of the post Not in appropriate APA format 	<ul style="list-style-type: none"> Post 178-200 words Well written
Competent 70-79%	<ul style="list-style-type: none"> Makes mostly complete response to the questions Mostly restatement of materials Conveys thoughts adequately; however, need to further develop critical aspects 	<ul style="list-style-type: none"> Student cites 1 peer-reviewed source. Not in appropriate APA format 	<ul style="list-style-type: none"> Post is 158-178 words A few writing errors
Minimal 0-69%	<ul style="list-style-type: none"> Provides weak contribution to the discussion board 	<ul style="list-style-type: none"> Does not cite any peer-reviewed sources 	<ul style="list-style-type: none"> Post is less than 158 words

	<ul style="list-style-type: none"> • Does not convey concept understanding • Shows evidence of critical thought but is not concise or complete 	<ul style="list-style-type: none"> • Addresses questions in a manner that is unclear • Not appropriate APA format 	<ul style="list-style-type: none"> • Poorly written • 0 points for posts submitted after 11:59 PM EST on Thursday
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Discussion Board Peer Response Rubric – Undergraduate

Peer Response Rubric	Content	Support & References	Mechanics & Length
Mastery 90-100%	<ul style="list-style-type: none"> • Advances discussion providing additional commentary that is relevant or offers an alternative • Critical thought development is evidenced by thoughtful and meaningful responses • Source is relevant and published in last 3 years 	<ul style="list-style-type: none"> • Student cites 2 peer-reviewed sources in the body of the posts • Proper APA format 	<ul style="list-style-type: none"> • Post exceeds 150 words • Very well written
Effective 80-89%	<ul style="list-style-type: none"> • Advances discussion providing additional commentary and critique • Responses are correct but mostly restate the peers' viewpoints without development of critical thought • Source is relevant and published in last 3 years 	<ul style="list-style-type: none"> • Student cites 2 peer-reviewed sources • Not in appropriate APA format 	<ul style="list-style-type: none"> • Post is 133-150 words • Well written
Competent 70-79%	<ul style="list-style-type: none"> • Shows adequate understanding of the knowledge and concepts posted by peers • Responses are mostly, "I agree..." • Source is somewhat relevant and published in last 5 years 	<ul style="list-style-type: none"> • Student cites 1 peer-reviewed source • Not in appropriate APA format 	<ul style="list-style-type: none"> • Post is 118-132 words • A few writing errors.
Minimal 0-69%	<ul style="list-style-type: none"> • Shows minor comprehension of concepts and viewpoints from peers. • Responses are vague and do not show understanding or comprehension 	<ul style="list-style-type: none"> • Does not cite any peer-reviewed sources • Not appropriate APA format 	<ul style="list-style-type: none"> • Post 0-118 words • Poorly written • 0 points for posts submitted after 11:59 PM EST on Sunday

VI. Course Policies

Academic Integrity

The College of Adult and Professional Studies fully supports and enforces the university's Academic Integrity Policy. Refer to CSU Student Handbook regarding Guidelines for the Research Paper, A Community of Honor, and the Academic Integrity Policy. Students will have a right to appeal any removal from the program but will follow the policy provided in the student handbook related to the appeal processes.

Plagiarism

Plagiarism in any form will not be accepted. This includes inappropriate resource use, utilizing the ideas, graphs, pictures or words provided by another author or resource. Plagiarism will be viewed as a critical offense and may result in dismissal from the program.

Attendance

Participation is very important in an online course. You will be expected to participate in all discussion boards, provide quality responses to all discussion board assignments. Responses must include an initial response from the student and two additional substantive responses to other students. The use of critical thinking, appropriate use of judgment and professional comments will be required for all responses. Agreement or disagreement with a fellow student will not constitute a quality response. Student opinions are important but must be supported by relevant data obtained in the literature or text to support the opinions. Students are expected to log in to the course daily. The number of minutes each student accesses all courses is tracked by Module and section contained within the online courses.

FA Policy

Any student who does not log into his/her courses for 14 consecutive days will be awarded a grade of FA (Failure due to Absences). For more information, please see the CSU Excessive Absence Policy:

<http://www.csuniv.edu/registrar/academicpolicies/policy10.html>.

Class Discussions

- Successful online learning requires active and meaningful participation in the discussion area.
- One initial discussion board post is due by the forth day (Thursday) of class and two response posts are due by the last day (Sunday) at 11:59 p.m. each week.
- Please refer to the Discussion Board Rubric located within this syllabus for guidance on delivering a substantial discussion.

Late and Make-up Assignments

Late assignments and/or discussion board responses will not be accepted after the due date and time. When substantive emergencies do occur, grace may be provided by the professor of record for

the course. When feasible contact with the professor is completed immediately following the substantive emergency. An emergency does not include computer or connection issues related to access to the online course or platform.

Satisfactory Academic Progress (SAP), Academic Probation, Suspension and Expulsion

- See the SAP scale and other important information in the current Undergraduate Catalog (CSU Website).

Integration of Faith

Integration of Faith in learning, leading and serving is not only the vision of Charleston Southern University and the College of Adult and Professional Studies, it is considered a way of life. Students will be expected to exhibit the integration of faith in all of their assignments, discussion boards and projects.