University of Massachusetts Global A private nonprofit affiliate

Course Number, Title and Credits

BIOU 101 - Introduction to Biology - 3 credits

Course Description

This course introduces the principles and concepts of biology with an emphasis on the impact of the human footprint on our planet. Students will examine basic cell structure and function, metabolism, cell growth, and genetics. Students will also explore concepts of evolution and the interaction between living organisms and their environment.

Course Learning Outcomes

- Apply the scientific method to investigate elementary biological problems.
- Diagram the atomic structure of biologically important elements.
- Compare and contrast the structure and functions of prokaryotic and eukaryotic cells.
- Analyze the structure of a virus and other acellular infectious agents.
- Describe cellular respiration, photosynthesis and the role of enzymes in these metabolic pathways.
- Distinguish between meiotic and mitotic forms of cell division.
- Explain the basic principles of inheritance.
- Summarize life information processes including DNA replication, transcription, and translation.
- Explain the theory of evolution, the mechanisms of evolution (especially natural selection), and the underlying scientific support for evolution.
- Analyze the impact of humans on our environment.

Required Textbooks

Biology Today and Tomorrow, With Physiology (2016), 5th Edition, by: Cecie Starr, Christine A. Evers, and Lisa Starr (ISBN-13: 978-1-305-11735-8).

Letter Grade/Percentage Equivalents

Grades are determined on a straight-scale basis using the following scales.

A	94%-100%	A-	90%-93%	B+	87%-89%
B	84%-86%	B-	80%-83%	C+	77%-79%
C	74%-76%	C-	70%-73%	D+	67%-69%
D	64%-66%	D-	60% - 63%	F	59% and below

Methods of Evaluation for Determining Grades

Assignment Detail for Course:

Assignments	**Possible Points**
Quizzes	40
Midterm Exam	30
Final Exam	30
Total Points Possible in Course	**100**

Course Outline (Tentative):

Module	**Topics&Assignments**
Module 1	**Cell Biology:** Covering the branch of science concerned with the chemical and physicochemical processes and substances that occur within living organisms at an introductory level. ● Chapter 1: Invitation to Biology. ● Chapter 2: Molecules of Life. ● Chapter 3: Cell Structure. ● Chapter 4: Energy and Metabolism. ● Chapter 5: Capturing and Releasing Energy. **Quizzes (Chs. 1 – 5)**

Module 2	**Cellular Reproduction**: Covering the process by which cells divide and multiply, playing a crucial role in growth and development. ● Chapter 6: DNA Structure and Function. ● Chapter 7: Gene Expression and Control. ● Chapter 8: How Cells Reproduce. ● Chapter 9: Patterns of Inheritance. ● Chapter 10: Biotechnology. **Quizzes (Chs. 6 – 10)** **Mid-Term Exam (Chs. 1 – 10)**
Module 3	**Evolutionary Biology:** Covering the scientific study of how and why species change over time, and having a focus on the processes that lead to biological diversity and adaptation. ● Chapter 11: Evidence of Evolution. ● Chapter 12: Processes of Evolution. **Quizzes (Chs. 11 and 12)**
Module 4	**The Six Kingdoms of Life & Viruses:** Covering the six kingdoms of classified life on Earth: Archaea, Bacteria, Protista, Fungi, Plantae, and Animalia. We will include viruses. Then, we will cover communities, ecology, and the biosphere. ● Chapter 13: Early Life Forms and the Viruses. ● Chapter 14: Plants and Fungi. ● Chapter 16: Population Ecology. ● Chapter 17: Communities and Ecosystems. ● Chapter 18: The Biosphere and Human Effects. **Quizzes (Chs. 13-14, 16-18)**
Module 5	**Anatomy and Physiology Part 1:** Covering the study of animal physical structures, while physiology refers to how those structures function and work together. ● Chapter 19: Animal Tissues and Organs. ● Chapter 20: How Animals Move. ● Chapter 21: Circulation and Respiration. **Quizzes (Chs. 19 – 21)**
Module 6	**Physiology Part 2:** Covering the continuation of more physiologic functions. ● Chapter 22: Immunity.

	• Chapter 23: Digestion and Excretion. **Quizzes (Chs. 22 and 23)**
Module 7	**Physiology Part 3:** Covering the continuation of more physiologic functions. • Chapter 24: Neural Control and the Senses. • Chapter 25: Endocrine Control. • Chapter 26: Reproduction and Development. **Quizzes (Chs. 24 – 26)**
Module 8	**Plant Biology:** Covering the study of plants, including structure and physiology. • Chapter 27: Plant Form and Function. • Chapter 28: Plant Reproduction and Development. **Quizzes: Chs. 27 and 28.** **Final Cumulative Exam: All chapters discussed.**

Academic Integrity

The University of Massachusetts Global is an academic community based on the principles of honesty, trust, fairness, respect and responsibility. Academic integrity is a core University value, which ensures respect for the academic reputation of the University, its students, faculty and staff, and the degrees it confers. The University expects that students will conduct themselves in an honest and ethical manner and respect the intellectual work of others.

Submitting to faculty work completed by the use of any artificial intelligence tool without permission and/or when prohibited by class policy. When faculty require the use of technology, including artificial intelligence, as a part of an assignment for the course, there is no violation. Students are reminded to consult syllabi, assignment sheets/rubrics, program documents and their faculty. Use of artificial intelligence, when permitted, must be correctly cited in the assignment.

The UMass Global online library provides resources to support research, proper citation styles, and the safe and responsible use of generative artificial intelligence or Gen AI.

- The Academic Integrity and Plagiarism Avoidance page provides guidance to help students better understand academic integrity and includes tips on how to avoid plagiarism.
- The Citing Sources page offers guidance on how to properly cite using APA, MLA, and Chicago styles.
- The Artificial Intelligence Resource Guide for Students provides advice for understanding and appropriately using generative artificial intelligence tools such as ChatGPT and Bard.

UMass Global's Office of Accessible Education

Students who require disability-related services or accommodations to access their educational experience can register with the Office of Accessible Education (OAE). The Office of Accessible Education (OAE) is committed to ensuring equal educational access and opportunity for all members of our academic community. Students will be provided equitable and reasonable accommodations and services that are in compliance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA)/Americans with Disabilities Act Amendments Act of 2008 (ADAA). Registration with OAE is on a voluntary, self-identifying basis. Please visit the Office of Accessible Education (OAE) website for more information about how to register for services, eligibility requirements, and information about potential academic accommodations and services.

Our university is committed to ensuring equal access for all students. Let us know about any accessibility barriers you encounter using any of our online systems or websites by submitting a Feedback or Accessibility Concern Submission Form. We'll do our best to improve things and get you the information you need.

UMass Global's CARES Team

The CARES team is a campus-wide team of appointed staff and faculty responsible for identifying, assessing, and responding to concerns and/or disruptive behaviors by students, faculty/staff, and community members who struggle academically, emotionally, or psychologically, or who present a risk to the health or safety of the university or its members.

Individuals may refer themselves or other community members of concern by emailing cares@umassglobal.edu or by filling out a referral form here. The CARES Team provides short term assessment, intervention, support, and recommendations of resources to those referred and engaged in the process.

UMass Global's Title IX Statement

The University of Massachusetts Global strives to maintain and foster a climate that promotes respect and human dignity. Sexual misconduct and relationship violence in any form is antithetical to the university's mission and core values, violates university policies, and may also violate federal and state law. The office of Title IX is primarily concerned for students' safety and well-being and is tasked with investigating all reports of sexual misconduct experienced by our community members. Title IX prohibits sex-based and gender-based discrimination and harassment, which includes discrimination based on pregnancy and/or pregnancy-related complications, parental status, and marital status. Students expecting or experiencing pregnancy-related complications, that may require educational accommodations, should contact the University's Title IX Coordinator and/or the Office of Accessible

Education.

The University and Title IX's prohibition of sex discrimination also covers sexual harassment, sexual violence, and any other form of sexual misconduct. We offer options and resources to all students affected by these issues and are committed to providing a fair, thorough, and prompt investigation and adjudication process. If you or someone you know has been impacted by sexual assault, dating, and domestic violence, stalking, or sexual exploitation, please visit the University's Title IX Resource Page to access additional resources and information.

UMass Global's staff and faculty are tasked with reporting any possible sex or gender-based discrimination or Title IX violations to the University's Title IX Coordinator at civilrightscomplaints@umassglobal.edu.

Click on this Link to our University Title IX Policy