BIOL 1185: Principles of Biology I

Summer Session 1 (5/20/24 – 6/25/24)

Randolph College

Instructor: Dr. Amanda Rumore, PhD (she/her)
Email: arumore@randolphcollege.edu

Course Description: Introduction to biological topics at the cellular level including the scientific method, chemical foundations of life, cell structure and reproduction, photosynthesis, cellular respiration, molecular biology, gene regulation, and modern biological techniques. Biology 1185L may be taken concurrently. Credit hours: 3. *One time only. (NS)*

Course Objectives: Students will be able to (1) Describe the scientific process (2) Identify the structure and function of biological macromolecules (3) Recognize cellular structures and their functions, including differences between prokaryotes and eukaryotes (4) Describe key metabolic processes including photosynthesis and cell respiration (5) Understand the mechanisms of cellular reproduction, genetics, and gene expression (6) Identify primary, secondary, and tertiary sources of biological information (7) Develop an understanding of ethical issues in biology (8) Recognize the importance and impact of biological knowledge in society

Course Website: moodle.randolphcollege.edu

Course Textbook (*free and open access*): Biology 2e. OpenStax CNX, 2018, Houston, TX. ISBN-10: 1-947172-51-4 | ISBN-13: 978-1-947172-51-7. https://openstax.org/details/books/biology-2e

Course Structure: This course is asynchronous; there is no dedicated class meeting time. However, the course is paced where assignments must be completed by specific dates. Students must complete all assigned work by the due dates.

Virtual Drop-In Hours: I will be available on Google Meet from 9:00-10:00am EDT on Wednesdays and 7:00-8:00pm on Thursdays to answer your questions and assist with coursework. Meeting invites will be sent via Google Calendar and meeting links will be posted on Moodle.

Time Commitment: Your grade in this course will reflect the time you put into it. Randolph College uses the industry-standard Carnegie Unit to define credit hours for both traditional and online courses. Each credit hour corresponds to a **minimum** of 8 hours of student engagement per week for a 5-week course. This is a three-credit hour course, thus requiring 24 hours of student engagement per week for 5-weeks. If you find yourself spending more than 24 hours/week, please contact me to discuss strategies for coursework completion. If you find yourself spending much less time than the recommended number of hours per week on average, you may not be adequately learning the material which will probably be reflected in poor performance on assignments, resulting in a lower final grade. **TL;DR: you will get very little out of this course (including a high grade) if you put very little effort in!**

Grading and Assignments:

- Quizzes (16): 50%
- Midterm Exam (1): 20%
- Final Exam (1): 20%
- Scientific Literature Assignments (2): 10%

Scale:		B+	87% -89%	C+	77%-79%	D+	67%- 69%	F	<60%
A	>93%	B	83% - 86%	C	73%- 76%	D	63%-66%		
A-	90% – 92%	B-	80% - 82%	C-	70%-72%	D-	60%-62%		

*Grades will be rounded at the .5pt (ex: 89.5 → 90%) (89.4 → 89%)

Quizzes:

There will be a total of 16 quizzes due throughout the course (one per chapter). Quizzes will be posted on Monday and are due by 9am the following Monday. Quizzes will be posted on Moodle as a Google Form link; the link will become inactive after the due date. Each quiz will cover the lectures, videos, associated material and assigned textbook posted on Moodle. Each quiz should take 300mins to complete, but there is no time limit. Quiz questions will be a combination of multiple choice, true/false, fill-in-the-blank, matching, and short answer. *Although quizzes are open book/open notes, your response must be your own thoughts without consultation with any other human (virtual/AI or in-person). Free response answers on quizzes are automatically flagged if they are very similar or identical to each other or the text appears copied from an online resource. These responses will be graded as a zero. Continued cheating will be reported to the Judiciary Chair.*

Scientific Literature Assignment:

Identifying credible sources of scientific information is an important skill. It is necessary for reading, learning, and applying concepts to your understanding of a topic. In this assignment, you will find and identify primary, secondary, and tertiary sources of information and then write a 1-paragraph summary of the information gathered from your sources. The topic must relate back to a topic discussed in class. For example, you might choose to write about how photosynthetic algae are being used to create "living batteries" and tie it back to your class knowledge on photosynthetic processes. You are required to properly cite all sources used in your paper. Guidelines for this assignment and submission instructions will be posted on Moodle and discussed in class.

Midterm and Final Exam:

Exams will cover all lectures, videos, textbook readings, and quizzes and MUST be taken within the open exam period. The Midterm Exam will cover all material up until the midterm exam date. The Final Exam will cover material from after the midterm exam through to the end of the course (non-cumulative). Exams will be a combination of multiple choice, true/false, fill-in-the-blank, matching, and short answer questions. The Midterm and Final Exams will be open-book/open-notes but timed.

Honor Code: Cheating, plagiarism, and falsification disrupt the stability of a healthy learning environment; therefore, you are expected to always abide by the Randolph College Honor Code.
Unless otherwise specified, all graded work in this course is to be completed individually.

College-Wide Syllabus Policies: It is your duty to review all College-wide policies.

Pass/Fail policy*:* Students taking this class for Pass/Fail credit must complete all graded assignments in this course. Failure to complete all assignments will result in a grade of I or F.

Course Recordings and Other Materials: all course materials (video lectures, quizzes, posted readings) are copyrighted or property of the instructor and institution. They may not be shared or distributed outside of the course.

Access Services: Randolph College is committed to providing learning experiences that are accessible for all students. Students needing accommodations in summer online courses at Randolph College need to send their requests and documentation to accessibility@randolphcollege.edu. Students enrolled at other colleges or universities may submit current letters of accommodation from their home institutions. Students who are not currently receiving accommodations and would like to inquire about receiving them in summer online classes at Randolph College can send any pertinent documentation or inquiries to the Coordinator of Disability Services at the email address listed above.

Inclusion Statement: I strive to create a learning environment that encourages educational equity and respects the identities (race, color, religion, national origin, age, ability, veteran status, political beliefs, gender/sexuality/relationship diversities) of all students. Please feel free to contact me with feedback in pursuit of this endeavor.

Syllabus Content Alterations: This document is neither a contract nor a warranty but instead a "living" document. The instructor reserves the right to make reasonable changes to this syllabus at any time. Students will be notified of any changes and should contact the instructor immediately if they have any questions or concerns.

SCHEDULE

Week 1: (Open date: 5/20/24)

- Chapter 1 – The Study of Life (Quiz 1)
- Chapter 2 – The Chemical Foundation of Life (Quiz 2)
- Chapter 3 – Biological Macromolecules (Quiz 3)
- Scientific Literature Assignment I
- **Close Date: the assignments above are due by 9am on Monday, May 27th**

Week 2: (Open date: 5/27/24)

- Chapter 4 – Cell Structure (Quiz 4)
- Chapter 5 – Cell Membrane (Quiz 5)
- Chapter 6 – Energy and Enzymes (Quiz 6)
- **Close Date: the assignments above are due by 9am on Monday, June 3rd**

Week 3: (Open date: 6/3/24)

- Chapter 7 – Cell Respiration (Quiz 7)
- Chapter 8 – Photosynthesis (Quiz 8)
- Chapter 10 – Cell Cycle and Mitosis (Quiz 9)
- *Midterm Exam*
- **Close Date: the assignments above are due by 9am on Monday, June 10th**

Week 4: (Open date: 6/10/24)

- Chapter 11 – Meiosis & Sexual Reproduction (Quiz 10)
- Chapter 12 – Mendelian Genetics (Quiz 11)
- Chapter 13 – Modern Understanding of Inheritance (Quiz 12)
- Scientific Literature Assignment II
- **Close Date: the assignments above are due by 9am on Monday, June 17th**

Week 5: (Open date: 6/17/24)

- Chapter 14 – DNA Structure and Function (Quiz 13)
- Chapter 15 – Genes & Proteins (Quiz 14)
- Chapter 16 – Gene Expression (Quiz 15)
- Chapter 17 – Biotechnology and Genomics (Quiz 16)
- *Final Exam*
- **Close Date: the assignments above are due by 11:59pm on Tuesday, June 25th**

Note: The syllabus is subject to change at the discretion of the instructor.