Syllabus: Biology 11A – Biology for Science Majors I

Course Information

Semester: Spring 2022
Section: 53496
Class Meetings: Lecture – Monday & Wednesday 9:30 – 11:20 AM, Life Science 6
Lab – Wednesday 11:30AM – 2:20 PM, Life Science 6

Instructor: Whitney Menefee

- Email: whitney.menefee@reedleycollege.edu
- Office: LFS 13
- Office Phone: (559) 494 – 3000 ext. 3257
- Office Hours: Monday 11:30 – 1:30PM, Tuesday & Thursday 12:30 – 1:30PM
    - Virtual Office Hour*: Friday 10:00 – 11:00AM
      *Details on how to access virtual office hours posted on Canvas

Course Description

Biology 11A is a 5-unit biology course with 3 lecture hours and 6 lab hours per week. Students will study the chemistry of life, the cell, cellular structure, metabolism, photosynthesis, aerobic and anaerobic respiration, mitosis, meiosis, genetics, molecular biology, and evolution. Genetics will include Mendelian Genetics, Human Genetics, and Biotechnology. This course is intended for Science Majors and for pre-medical, pre-veterinarian, pre-dental, pre-optometry, and pre-pharmacy majors.

Student Learning Outcomes

Upon completion of this course, students will be able to

- analyze the process of meiosis as it relates to biological diversity.
- apply Darwin's theory of natural selection to genetic variation and its effects on environmental adaptation.
- apply the scientific method to design an experiment to test a hypothesis using appropriate controls based on current theories in biology.
- demonstrate how living organisms utilize ATP.
- describe the cell's structural components and their function.
- Understand how the Hardy-Weinberg equation measures genetic change within a population.

Course Objectives

In the process of completing this course, students will

- Use their textbook, laboratory manual, and scientific literature along with the scientific method to design laboratory experiments to test a hypothesis.
- Understand the structure of elements and how elements are bonded to make molecules.
- Understand how the structure of water affects it polarity, cohesion, pH.
- Understand the function and structure of the molecular basis of life; carbohydrates, lipids, proteins, and nucleic acids.
- Identify prokaryotic and eukaryotic cells, organelles, and tissues.
- Diagram the plasma membrane of a cell and list their functions and structural components.
- Describe transport across a membrane in diffusion, osmosis, and active transport.

- List, in order, the parts of glycolysis, Krebs, and the Electron Transport Chain.
- Define the structure and function of a cell-signaling pathway.
- State the cell cycle, mitosis, and its controls.
- Demonstrate proficiency in pedigree analysis
- Calculate phenotypic and genotypic ratios
- Acquire and apply basic DNA technological laboratory skills.
- Understand microbial genetics and nutrition using prokaryote microorganisms and viruses.
- Examine the concepts and techniques associated with embryological development.
- Use critical thinking skills to perform and analyze laboratory experiments.
- Set up an evolutionary chart of representative organisms.
- Cite examples of evolutionary adaptations.
- Use the Hardy-Weinberg theorem in frequency of alleles in a population.
- Examine macroevolution.
- Compare and contrast mass extinctions in evolutionary history.
- Draw out the branches of new phylogenies.
- Compare eukaryotes to prokaryotes and the diversity of organisms on earth.

Course Requirements and Policies

Prerequisites

Chemistry 1A and Math 103 or 3A or 5A or equivalent

Required Course Materials

- Textbook: Biology for Science Majors I – Available for free in Canvas
  *Available to view/download for free at: https://bio.libretexts.org/Courses/Reedley_College/Biology_for_Science_Majors_I
- Lab Manual: Biol 11A Lab Manual – Available for free in Canvas
  *Printed copy can be purchased at the RC Bookstore

Technology Requirements

- Check Canvas and your Reedley College email accounts regularly (recommended multiple times per week) for announcements.
- All course materials (textbook, lab manual, lecture notes, handouts, schedules, grades, etc.) will be posted on Canvas.

Class Policies

Attendance and Drop Policy

- Students are expected to attend in-person class sessions regularly. Attendance will be taken by the instructor during every class session.
  - Attendance does not count toward a student's grade in this course, but must be reported to college records at the end of the semester.
- Students will be dropped from this course if they do not attend the first lecture and/or first lab without prior notification to the instructor.
- The final drop date for this course is March 11th, 2022.
  - It is the student's responsibility to drop this course if he/she feels necessary. The instructor will NOT drop any student after the first week of instruction.

Late Work Policy

Exams

Exams may only be made up due to extreme circumstances, at the discretion of the instructor, if arranged with the instructor *before the scheduled exam period (at least 3 hrs prior).*

Writing Assignment/Presentation

The due date for the writing assignment and presentation will be during week 17 (see Canvas for more specific dates). Late submissions cannot earn points, and will be given a 0 if not submitted by the due date. No exceptions.

Communication Policy

Email/Messaging

The best and most effective way of communicating with me is to email me at whitney.menefee@reedleycollege.edu or by sending me a message in Canvas. Not sure how to send a message in Canvas? Check out this quick guide: How to send a message in Canvas.

- Please allow a 24hr response time! I will always respond to emails and messages within 24 hours, but please allow up to 24 hours. If I don't respond within 24 hours, please double check the email address and resend your message then, chances are I didn't receive it!
- Emailing and messaging can be used 24 hours a day, 7 days a week!

Office Hours

I hold on-campus and virtual office hours.

- On Campus: If you would like to come by my office, I am always guaranteed to be in my office during these hours. My office is on the Reedley College Campus in room Life Science 13. You can drop by anytime during this time frame, no appointment needed! If you are unable to make these office hours, but would like to meet with me in person, please email me and we will arrange an appointment to meet in my office.
- Virtual: Office hours via Zoom (online video conferencing platform). A link to my Zoom room will be provided on Canvas. You can use the link to access my virtual office hours anytime they are scheduled, no appointment needed! If I am already talking with another student, you will be directed to the 'waiting room' until I am finished with that student. If you are unable to log in to the scheduled virtual office hours, but would like to meet with me virtually, please email me and we will arrange an appointment to meet that will fit both our schedules.

College Policies

- "Students at the Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share responsibility for seeing that their education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences." Reedley College Catalog pg. 45
    - Please see Disciplinary Procedures in the Student Conduct Standards and Grievance Procedures Handbook available in the Vice-President of Student Services office, or at the link listed below.
    - For a comprehensive list of Student Conduct Standards, see: http://reedleycollege.edu/index.aspx?page=233
- If you have a verified need for an academic accommodation or materials in alternate media (e.g. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

Grading Policy

Final letter grade scale: A = 90% +, B = 89 - 80%, C = 79 - 70%, D = 69 - 60%, F = 59% or less.

TASK	Points	% of Grade	Breakdown
Exams	500	62.5%	5 exams @ 100 points each
Final Exam	200	25%	1 cumulative final
Writing Assignment	50	6.25%	1 writing assignment
Presentation	50	6.25%	1 presentation
Totals	800	100%	

Grades will be posted on Canvas and will be updated regularly throughout the semester.

Course Exams and Assignments

Exams

Exams may only be made up due to extreme circumstances, at the discretion of the instructor, if arranged with the instructor before the scheduled exam period (at least 3 hrs. prior). There will be 5 midterms and a cumulative final exam. See the Tentative Schedule in Canvas for exam dates. Each exam will include new material covered in the corresponding unit, **including lecture and lab material**, and will also build on concepts covered in previous units. Exams will consist of multiple-choice, matching, fill in the blank, and short-answer/essay questions. All exams will be given in class. Forming study groups and attending tutoring sessions is highly recommended.

Writing Assignment

You are required to complete one writing assignment in this course to fulfill the writing requirement of this GE course; the word count of this assignment must be over 1000 words to pass this class. Detailed instructions (including topics, formatting requirements, rubrics, due dates, ect.) for the assignment are available on Canvas. You will submit a draft of your report for peer feedback. The instructor will grade the final version of your assignment. Note: All drafts and final reports must be submitted to TurnItIn (on Canvas) for the peer feedback and grading process. *If you do not fulfill the requirements of this writing assignment in its entirety, you cannot pass Biol 11A.*

- ***Plagiarism Detection***: The campus subscribes to TurnItIn plagiarism prevention service through Canvas, and you will need to submit written assignments to TurnItIn. Your work will be used for plagiarism detection and for no other purpose. TurnItIn Originality Reports will be available for your viewing.

Presentation

Each student will be responsible for putting together and giving an oral presentation in class based on the topic of their writing assignment. Detailed instructions (including topics, formatting requirements, rubrics, due dates, ect.) for the assignment are available on Canvas. *If you do not fulfill the requirements of this presentation in its entirety and complete your oral presentation in class, you cannot pass Biol 11A.*

Non-credit Learning Activities

There will be many opportunities to complete activities to aide in the learning process for this course. These activities include (but may not be limited to) quizzes, lab reports, and discussion board posts on Canvas. These activities are not worth points, but will allow for instructor feedback and provide materials to study for exams. There are no due dates for these activities. Any activity can be submitted for feedback anytime. Please allow up to one week after submission for instructor feedback.

Participation Standards

Study Expectations. Consider the following statement as a general guideline for participation for this class: "It is usually expected that students will spend approximately 2-3 hours of study time outside of class for every one hour in class. Since this is a 5-unit class (9 hrs./week), you should expect to study an average of at least 18 hours outside of class each week. Some students may need more outside study time and some less. "

Subject to Change Statement

This syllabus and tentative schedule are subject to change with notification. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

Tentative Course Schedule

DATES	Lecture/Lab Topics
Week 1	Course Intro The Science of Biology
Week 2	The Science of Biology
Week 3	Biological Molecules
Week 4	The Cell
Week 5	**Exam #1** Enzymes
Week 6	Cellular Respiration
Week 7	Photosynthesis
Week 8	**Exam #2** Mitosis & Meiosis
Week 9	Cell Communication Genetics
Week 10	**Exam #3** DNA Structure
Week 11	Molecular Biology of Genes
Week 12	Gene Expression Biotechnology
Week 13	**Exam #4** Biotechnology
Week 14	Population Genetics
Week 15	Evolution
Week 16	Systematics
Week 17	**Exam #5** Final Student Presentations
Week 18	**Final Exam - Cumulative**

*A more detailed weekly schedule can be found on Canvas.

Other Important Dates:

Final Drop Date to avoid "W": January 28th
Final Drop Date (with "W"): March 11th