Biology 11A – Biology for Science Majors I

Course Information

Semester: Fall 2018
Section: 55172
Class Meetings: Lecture – Monday & Wednesday 9:00 – 10:15 AM, Life Science 6
Lab – Monday & Wednesday 10:30AM – 1:20 PM, Life Science 6

Instructor: Whitney Menefee

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- Office: LFS 13
- Office Phone: (559) 638 – 0300 ext. 3257
- Office Hours: Tues 12:00 – 1:30PM, Wed 1:30 – 2:30 (LRC) & Fridays 9:30AM – 12:00PM

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

Required Course Materials

- Textbook: Biology w/Connect Access, 11th Ed. Raven; McGraw-Hill ISBN: 978-1-2599-6822-8
- Lab Manual: Bio 11A/11B Lab Manual, Custom Ed. Vodopich; McGraw-Hill ISBN: 978-1-3088-0072-1
- Scantrons: 882-E (6x)

Technology Requirements

- Check Canvas and your Reedley College email accounts regularly (multiple times per week) for announcements.
- All lecture and lab PowerPoints, handouts, notes, schedules, grades, ect. will be posted on Canvas.

Class Policies

Attendance and Drop Policy

- Students are expected to attend person class sessions. Sign-in sheets will be used and each student must sign in for himself/herself ONLY.
    - *If you miss 20 hours or more of the this class throughout the semester, it will result in the lowering of your final course letter grade by one letter grade.*
- Excessive tardies (10 min late) will NOT be tolerated (three tardies equals one absence).
- 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.
- Students will be dropped from this course if they have excessive absences of 8 hours or more of lab and/or lecture by the end of the third week of instruction (August 31).
- The final drop date for this course is October 12th, 2018.
    - It is the student's responsibility to drop this course if he/she feels necessary. The instructor will NOT drop any students after the third week of instruction.

Late Work Policy

Exams

Lecture 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).*

Online Assignments/In-class Activities

No late work for any assignments/activities in-person or online, including but not limited to quizzes and lab reports, will be accepted for any reason. No exceptions.

Communication Policy

Email/Messaging

The best and most effective way of communicating with me is to email me at mailto: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. Do not send an email and two hours later send the email again if I haven't responded. 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. 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. My virtual office hours are held through Canvas using the messaging function. You can expect an immediate response during this time frame if you send me a message in Canvas.

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	50%	5 exams @ 100 points each
Final Exam	200	20%	1 cumulative final
Quizzes	50	5%	10 quizzes @ 5 points each
Lab Reports	100	10%	20 lab reports @ 5 points each
LearnSmart Reading	50*	5%	5 units @ 15 points/unit = 75 pts (# of Ch. will vary by unit) *a total of 75 points will be offered, but score will be out of 50. 25 points extra credit available
Writing Assignment	50	5%	1 writing assignment
Presentation	50	5%	1 presentation
Totals	1000	100%	

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

Course Exams and Major Assignments

Lecture 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 comprehensive final exam. See the Tentative Schedule 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. Forming study groups is highly recommended. All exams will be given in class. **Final Exam** is cumulative.

Quizzes

Unannounced lab quizzes will be given at the *beginning* of the lab sessions. Quizzes will consist of multiple choice, matching, and fill in the blank questions and will contain information from that day's scheduled lab. To prepare for the quizzes, students should always read through the scheduled lab *before* class.

Lab Reports

Each lab session will have an associated lab report. Lab reports must be submitted on the lab report forms found in the lab manual. Lab reports are due at the end of their scheduled class session. No late lab reports will be accepted. You cannot turn in a lab report for a lab that you were not in attendance of.

LearnSmart Reading

Every lecture will have associated LearnSmart Reading through your McGraw-Hill Connect account. These assignments (and the eBook) can be accessed through Canvas. LearnSmart Reading assignments will be due at the end of each unit. See Canvas for exact due dates. It is HIGHLY RECOMMEDED that you complete the assigned reading BEFORE the associated lecture.

- **Extra credit.** Extra credit can be earned by completing all LearnSmart Reading assignments. Throughout the semester, there will be a total of 75 points offered, but will only be graded out of 50 points. This allows up to 25 extra credit points (or 2.5%). *There will be no other extra credit offered in this course.*

Writing Assignments

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.

Presentations

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.*

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	LearnSmart	Other
Week 1	8/13	Intro & Science of Biology	Safety, 1 - Sci Method	Ch 1	
	8/15	Chemistry	2 -Metric System; 3 - Microscope	Ch 2	
Week 2	8/20	Biological Molecules	6 – Biological Molecules	Ch 3	
	8/22	Biological Molecules	8 - Spectrophotometry	Ch 3	
Week 3	8/27	Cell structure	4 - Cells	Ch 4	
	8/29	Membranes	9 - Diffusion	Ch 5	
Week 4	9/3	**No Class - Labor Day**			
	9/5	**Exam #1**			
Week 5	9/10	Energy & Enzymes	11 - Enzymes	Ch 6	
	9/12	Bioenergetics/Anaerobic Resp	12 - Respiration (Anaerobic)	Ch 6 & 7	
Week 6	9/17	Aerobic Respiration	12 - Respiration (Aerobic)	Ch 7	
	9/19	Photosynthesis	13 - Photosynthesis	Ch 8	
Week 7	9/24	**Exam #2**			
	9/26	Cell Communication	10 - Membranes	Ch 9	
Week 8	10/1	Cell Division	14 - Mitosis	Ch 10	
	10/3	Meiosis	15 - Meiosis	Ch 11	
Week 9	10/8	Genetics	17 - Genetics	Ch 12	
	10/10	Genetics	17 - Genetics Problems	Ch 12	
Week 10	10/15	**Exam #3**			
	10/17	DNA	7.3 - Electrophoresis	Ch 14	
Week 11	10/22	Mol Bio of Genes	Genotyping (PV92)	Ch 15	
	10/24	Mol Bio of Genes	Genotyping (PV92)	Ch 15	
Week 12	10/29	Gene Expression	DNA Isolation & transformation	Ch 16	
	10/31	Biotechnology	DNA Isolation & transformation	Ch 17	
Week 13	11/5	**Exam #4**			Pick Paper Topic
	11/7	Development	Student Research	Ch 19	
Week 14	11/12	**No Class – Veteran's Day**			
	11/14	Population Genetics	18 & 19 - Evolution	Ch 20	
Week 15	11/19	Evidence for Evolution	Evolution Movie	Ch 21	Rough Drafts due for Peer Feedback
	11/21	Speciation	Evolution Board Game	Ch 22	
Week 16	11/26	Systematics	Exam Review	Ch 23	Peer Feedback Due
	11/28	**Exam #5**			
Week 17	12/3	Student Presentations	Student Presentations		Final Paper Due
	12/5	Student Presentations	Final Exam Review		
Wk 18	12/12	**Final Exam - Cumulative**			

* This schedule is subject to change with notification

Other Important Dates: **Final Drop Date to avoid "W":** August 31st

Final Drop Date (with "W"): October 12th