

Biology 11A – Biology for Science Majors I

Syllabus

Fall 2017

Section: 56643

Class Meetings: Lecture – Monday & Wednesday 9:00 – 10:15AM, Life Science 6

Lab – Monday & Wednesday 10:30AM – 1:20AM, Life Science 6

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Office Hours: Tuesday 3:00 – 5:00PM; **Virtual Office Hours*:** Friday 9:00 – 10:00AM

*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.

I. **Course Objectives:** *Upon completion of this course, students will be able to*

- 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 its 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.

II. Prerequisites: Chemistry 1A and Math 103

III. Required 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
- Book: The Immortal Life of Henrietta Lacks, Rebecca Skloot
ISBN: 978-1-4000-5218-9
- Scantrons: 882-E (6x)

IV. Technology/Canvas:

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

V. Class Policies

- **Attendance Policy:**
 - Students are expected to attend all class sessions. Sign-in sheets will be used and each student must sign in for himself/herself ONLY.
 - 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 (Sept. 1).
 - Excessive tardies (10 min late) will NOT be tolerated (three tardies equals one absence).
 - *If you miss 20 hours or more of this class throughout the semester, it will result in the lowering of your final course letter grade by one letter grade.*
- **Make-up Policy:** 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)*. **Quizzes may not be made up. No late work (assignments, lab reports, ect.) will be accepted.**
- NO cell phones are allowed to go off during this class. If they ring or are used during a test or quiz, the student will receive a 0 for that exam or quiz. You cannot make up these assignments.
- **COLLEGE POLICY ON CHEATING AND PLAGIARISM**
“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.

VI. Grading

Grades will be based on the following scale: A = 90% +, B = 89 - 80%, C = 79 - 70%, D = 69 - 60%, F = 59% or less.

TASK	Points	% of Grade	Breakdown	Notes
Exams	500	50%	5 exams @ 100pts each	
Final Exam	200	20%	1 cumulative final	
Lab Reports	100	10%	20 reports @ 5pts each	
Writing Assignment	50	5%	1 writing assignment	
Presentations	50	5%	1 presentation	
In-class Quizzes	50	5%	10 quizzes @ 5pts 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
Totals	1000	100%		

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

VII. Exams and Major 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 4 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. *Quizzes cannot be made up if missed.*
- **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 RECOMMENDED** 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*

VIII. Participation Standards

- **Study Expectations. Consider using the following statement:**
It is usually expected that students will spend approximately 2 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 15 hours outside of class each week. Some students may need more outside study time and some less.

IX. Subject to Change Statement

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

TENTATIVE SCHEDULE

DATES		Lecture	Lab	LearnSmart Reading	Other
Week 1	8/14	Intro & Science of Biology	Safety, 1 - Sci Method	Ch 1	
	8/16	Chemistry	2 -Metric System; 3 - Microscope	Ch 2	
Week 2	8/21	Biological Molecules	6 – Biological Molecules	Ch 3	
	8/23	Biological Molecules	8 - Spectrophotometry	Ch 3	
Week 3	8/28	Cell structure	4 - Cells	Ch 4	
	8/30	Membranes	9 - Diffusion	Ch 5	
Week 4	9/4	No Class - Labor Day			
	9/6	Exam #1	HeLa Book Discussion		
Week 5	9/11	Energy & Enzymes	11 - Enzymes	Ch 6	
	9/13	Bioenergetics/Anaerobic Resp	12 - Respiration (Anaerobic)	Ch 6 & 7	
Week 6	9/18	Aerobic Respiration	12 - Respiration (Aerobic)	Ch 7	
	9/20	Photosynthesis	13 - Photosynthesis	Ch 8	
Week 7	9/25	Exam #2	HeLa Book Discussion		
	9/27	Cell Communication	10 - Membranes	Ch 9	
Week 8	10/2	Cell Division	14 - Mitosis	Ch 10	
	10/4	Meiosis	15 - Meiosis	Ch 11	
Week 9	10/9	Genetics	17 - Genetics	Ch 12	
	10/11	Genetics	17 - Genetics Problems	Ch 12	
Week 10	10/16	Exam #3	HeLa Book Discussion		
	10/18	DNA	7.3 - Electrophoresis	Ch 14	
Week 11	10/23	Mol Bio of Genes	Genotyping (PV92)	Ch 15	
	10/25	Mol Bio of Genes	Genotyping (PV92)	Ch 15	
Week 12	10/30	Gene Expression	DNA Isolation & transformation	Ch 16	
	11/1	Biotechnology	DNA Isolation & transformation	Ch 17	
Week 13	11/6	Exam #4	HeLa Book Discussion		Pick Paper Topic
	11/8	Development	Student Research	Ch 19	
Week 14	11/13	Population Genetics	Student Research	Ch 20	
	11/15	Population Genetics	18 & 19 - Evolution	Ch 20	
Week 15	11/20	Evidence for Evolution	Evolution Movie	Ch 21	Rough Drafts due for Peer Feedback
	11/22	Speciation	Evolution Board Game	Ch 22	
Week 16	11/27	Systematics	Exam Review	Ch 23	Peer Feedback Due
	11/29	Exam #5	HeLa Book Discussion/Research		
Week 17	12/4	Student Presentations	Student Presentations		Final Paper Due
	12/6	Student Presentations	Final Exam Review		
Wk 18	12/11	Final Exam - Cumulative			

**This schedule is subject to change with notification.

- Final Drop Date to avoid “W”: September 1
- Final Drop Date (with “W”): October 13