BIOLOGY 11A: Biology for Science Majors I Spring 2023

Lecture Instructor: Ms. Smith Bush

Lab Instructor: Dr. Christopher Emerling

Lecture: Online and Asynchronous

Lab: Wednesdays 9–11:50 am; LFS 6.

Ms. Smith Bush's Contact Information

Office Hours: Monday & Friday 3:00-4:00pm Online via Canvas messaging. Wednesday 10:00am-1:00pm LFS 13; & Zoom meetings upon arrangement.

Phone: Phone extension #3636

E-mail: bethany.bush@reedleycollege.edu

Dr. Emerling's Contact Information

Office Hours: Monday 11–11:50 am, Tuesday 10:30 am–1:00 pm, Wednesday 3:20–4:10 pm LFS 13; Zoom online office hours by appointment only

Email: christopher.emerling@reedleycollege.edu

Zoom ID: 990 6009 7271

Phone: ext. 3134

COURSE DESCRIPTION

Title: Biology 11A – Biology for Science Majors I

Prerequisite: BIOL 11A

Catalog Description: In the first course of a two semester sequence of general biology for science majors, students will study the chemistry of life, cellular structure, cellular metabolism- including photosynthesis, aerobic and anaerobic respiration, cellular communication, cellular division and its regulation, Mendelian genetics, biotechnology, and evolution. This course is intended for Science Majors and pre-medical, pre-veterinarian, pre-dental, pre-optometry, and pre-pharmacy majors. PREREQUISITES: Chemistry 1A and Mathematics 103 or 3A or 5A or equivalent. ADVISORIES: English 1A or 1AH, Biology 10 & 10L or high school Biology.

Course Outcomes

Upon completion of this course, students will be able to:

SLO1: analyze the process of meiosis as it relates to biological diversity.
SLO2: apply Darwin's theory of natural selection to genetic variation and its effects on environmental

adaptation.
SLO3: apply the scientific method to design an experiment to test a hypothesis using appropriate controls based on current theories in biology.
SLO4: demonstrate how living organisms utilize ATP.
SLO5: describe the cell's structural components and their function.
SLO6: Understand how the Hardy-Weinberg equation measures genetic change within a population.

REQUIRED MATERIALS:

Required Texts:

Biology by Raven et al., 13th Edition, with access to the Smartbook component of the textbook.

Required Equipment and Materials:

Computer and reliable internet access

COURSEWORK AND EXAMS

Reading assignments: You are responsible for learning the material in the assigned readings regardless if it was discussed in lecture. If you have any problems understanding reading material, I encourage you to seek my assistance. It is encouraged that you read the material to be discussed for the day before the class meeting. Doing this will not only make you a more active participant in the entire learning process, it will greatly increase what you get out of the class.

Smartbook assignments (5 pts. each): Each student will be required to purchase an active access code for the Learnsmart component of the textbook. I will assign a Learnsmart assignment for each chapter we cover in the class. You will have one week to complete each assignment.

Semester Project (100 pts.): A semester research project will be required. Students may be asked to incur the cost of photograph developing, gas and presentation materials. More on this later.

Field Trips: One field trip may be required during the course. I am aware that you may have classes on the trip date so I will let you know some time in advance so that you may make the appropriate arrangements. Information and concepts discussed during these meetings are fair game on quizzes and exams. If a field trip cannot be made, prior notification is required and you will be responsible for making up the activity on your own.

Lecture/lab Exams: There will be 4 major exams worth 100 points each. Additionally, there will be one cumulative final exam worth 200 points. Exams will be multiple choice, short answer and essay. Exams will include information from lecture, Learnsmart, lab and your reading assignments. Additionally, lab exam material may include photographic slides or be of the practical type where questions and specimens are at various stations throughout the room. The lab portion of the exam will only be available during the scheduled exam time. Because of this fact, students are encouraged not to miss class exam days.

Labs (10 pts each): Laboratory work is a crucial component of this course. Do not treat laboratory material as separate material from the lecture component of the course. I have constructed this class so that the materials in these two components complement each other. Various points will be assigned for lab work. Always bring lecture notes, textbook and lab notebook to laboratory sessions.

Extra Credit: Up to 25 extra credit points will be assigned throughout the semester. If you have over four absences within the semester you will not be eligible for these points.

Class Disturbances: Disruptive behavior will result in removal of the student for up to 2 class meetings. Further disruptions will be handled by the college. Cell phones are not allowed to be on in the classroom during exams.

ATTENDANCE: You are expected to be on time for each laboratory and lecture session. Tardiness may be construed as an absence from the class. Be aware that 3 tardies = 1 absence. If you are late, it is your responsibility to see the instructor after class. This is very important because if you miss more hours than this class meets in two weeks you will be dropped unless your instructor has been informed of the extenuating circumstances causing your absences. Any missed lab counts for three hours absence. Attendance in this class is closely monitored due to safety issues. It is your responsibility to keep track of your absences/tardies.

GRADING: 90 – 100% =A, 80 – 89% =B, 70 – 79% =C, 60 – 69% =D, 59% and Below =F

At any point you can check your grades on our Canvas class site under gradebook. You are encouraged to check this site regularly and keep track of your own grades! Additionally, all handouts and class notes for our class will be available on this site.

Assignments	Points
Labs (16 @10).....	160
Smartbook (21 @ 5).....	105
Exams (4 @ 100).....	400
Final Exam (1 @ 200).....	200
Project (1 @ 100).....	100
Total Points	965

Policy for missed exams. The lab practical portion of an exam cannot be made up due to the equipment, time, space availability, and the preparation needed to do so. You will not be able to earn these points if you need to make up an exam. It is highly recommended that you call before an absence! You have one week to make-up any missed lecture exam. After one week any missed grade may not be made up unless prior written arrangements have been made to ensure quality work and fairness to the instructor and the other students. Exams taken late will be docked 10% unless a medical excuse is provided.

Policy for missed labs: If a lab is missed you will not be allowed to make it up. Attending the lab is mandatory. No points will be given for lab work if you were not present during the lab meeting.

Other information:

Drops: You have until the 9th week of school to drop. If you elect to do so, be sure to drop yourself. Do not assume you have been automatically dropped. This is very important, as after the 9th week a grade must be give, by state law, whether you attend class or not.

Adds: If you are given an add slip, be sure to turn it into Student Services within two days of receipt. After this date, you will not be allowed to add the class with that add slip.

Academic Dishonesty :

Students at 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 the responsibility to ensure this 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 entire honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences. See college catalog for details.

If you have a verified need for an academic accommodation or material in alternate media (i.e. Braille, large

print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Help: If you should have difficulty grasping the material presented during the course be sure to see your instructor at the first sign of trouble. Often, a few minutes can clear up many problems! If you are having trouble studying, perhaps you need a few study hints or a tutor at the Tutorial Center. Please come in for help!

Always keep in mind that this is a five-unit course. As a general rule, each hour of lecture requires two hours of additional study outside of the classroom each week. Each hour of lab requires one hour of study time, outside the laboratory each week. This equals twelve hours of study each week in order to pass this class. Do your planning accordingly.

Success comes before work only in the dictionary. Overall, I hope you have a fun semester and learn Biology along the way. Good Luck.

Week	Lecture - Online Asynchronous	Textbook	Lab - Wednesdays
1	Course Intro The Science of Biology	Ch.1	1. Introduction to Scientific Tools and Methods
2	Chemistry	Ch.2	
		Ch.3	2. Biological Molecules
3	The Cell	Ch.4	
			3. The Cell
4	Membranes	Ch.5	
			4. Spectrophotometry 5. Enzymes
5	Energy & Metabolism	Ch.6	
	Exam #1		

6 Cellular Respiration Ch.7

6. Cellular Respiration

7 Photosynthesis Ch.8

7. Photosynthesis

8

Cell Communication

Cell Division

Ch.9

Ch.10

8. Mitosis & Meiosis

9

Sexual Reproduction & Meiosis

Ch.11 Exam #2

10 Genetics

Ch.12

Ch.13

9. Genetics

11 DNA Ch.14

10. DNA Structure & Gel Electrophoresis

12 Molecular Biology of Genes Ch.15

11. DNA Function 12. Genetic Mapping

13 Gene Expression/Biotechnology

Ch.16

Ch.17

Exam #3

14 Evolution Ch.21

13. Bacterial Transformation (pGLO) Advances in Biotechnology Project Research

15

Population Genetics

Origin of Species

Ch.20

Ch.22

14. Natural Selection

15. Population Genetics

16 Systematics Ch.23

Exam #4

17 Presentations

16. PTC Taster (miniPCR)

18 Final Exam

Final Exam