

Biology Seminar KAP (CCP): North Ridgeville High School 2017-2018

Biology 115: Energy in Living Systems, Kenyon College

Ms. Katoa

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Welcome to Biology Seminar KAP! This college level course is equivalent to a semester of biology lecture taught at Kenyon College in Gambier, Ohio. You will earn both college and high school credit upon successful completion of this class. You are expected to be highly self-motivated, willing to use multiple resources, and take responsibility for your learning in order to master the course content.

Biology 115 covers the study of life from the basic biochemical levels to the complex global levels following the theme of energy flow through materials and organisms. During First Semester we will focus on the chemical basis of life, cell structure and function, and cellular energetics. Second Semester will include cellular organization, homeostasis, and biodiversity at the ecological levels. This course is designed to further develop your abilities in understanding biological concepts through reading, writing, and scientific thinking.

Course prerequisites: A or B in Biology and Chemistry, teacher recommendation, and acceptance into KAP by Kenyon College.

Kenyon Academic Partnership (KAP)

For forms and information about KAP go to www.kenyon.edu/KAP

- Upon successful completion of this class, you will be issued a grade and college credit from Kenyon College. It is your responsibility to request a transcript for this course to be sent to the college/university that you attend. Transcripts cost \$5.00 each.

In agreement with Kenyon College, KAP Biology expects you to;

- (1) Use a college level text and study materials.
- (2) Read and interpret primary literature.
- (3) Develop critical thinking skills and problem solving skills.
- (4) Develop scientific writing and computing skills.
- (5) Invest time and effort comparable to that of Kenyon College students.
- (6) Discuss scientific ideas and questions in articulate and logical ways.

Grading:

1. Assignments are **weighted** as follows:

<i>Types of Work</i>	<i>Weight</i>
Labs, projects, larger written assignments, etc.	25%
Homework/Classwork (Discussions, online/text, etc)	15%
Assessments (Tests & Quizzes)	60 %

- Expect to have more than one assignment to work on at any given time. Some handouts/review guides will be made available but not collected for points. These are designed to help you learn the material and prepare for labs and tests. It is to your advantage to complete all assignments.
- **NO** late work is accepted.
- **Tests:**
 - Tests will be over unit topics (sometimes several chapters). **Anyone achieving less than a "C" on a test should meet with me to discuss strategies to improve test scores.**
 - There will be a Midterm and a Final Exam (no exemptions)

Expectations for Class:

- 1 **Attendance:** Absences should be rare in this class. When you are absent use your syllabus as a guide to keep you up to date until you return to school. You are expected to make up all work. If an assignment is due the day of your absence it is expected to be turned in the day you return. If you are absent the day of a lab, you will be expected to make it up within a timely manner. There may be times where an alternative lab is given, but you are still responsible for ALL material covered.
- 2 **Class Participation and Discussions:** Come prepared for class, ask questions, and contribute in a positive and meaningful way!
- 3 **Academic Honesty:** Do not copy, plagiarize, or turn in any work that is not your own. Proper citations, using APA format, must also be used in formal writing assignments and as noted.
- 4 **Reading:** Reading is critical for mastery of content and preparation for lectures, labs, and tests. It is recommended that you study the reading and lecture material *everyday* to better prepare you for exams. Re-reading is also strongly advised! You will be given supplemental readings from various sources in addition to the text.
Recommended strategy for reading:
 - Pre-Read: best done *before* content is covered in class (scan headings, list & define major vocabulary, look at images and their captions)
 - Read: within a day after a class lecture, read sections alongside notes taken in class. Add helpful tips, definitions, etc. to your class notes.
 - Review or re-read sections you are having trouble comprehending.
- 5 **Written Assignments:** The goal for these assignments is that you learn something new and enhance your writing skills. You will gain experience reading scientific articles and reporting on them. You will be writing lab reports and analyzing data.
- 6 **Labs:** There will be a variety of labs completed throughout the year including dissections. Participation is expected in all lab activities. Follow all lab safety procedures—additional lab safety will be covered.

Textbook & Online Classrooms:

Biological Science 5th edition (Freeman).

- Your text will be assigned as an electronic version only. There are some older print editions available for use in class. If you prefer your own print copy, check online for new or used (a lot less expensive!) books to purchase.
- MasteringBiology (Pearson) is the web-based platform by which you will access your text and online assignments.
 - You will be assigned MasteringBiology assessments/tutorials for all chapters we cover, plus additional ones if needed. Online assessments will be added together and count as a test grade. One “online assessment” grade will be entered each quarter.

Google Classroom will also be used, primarily to post important resources.

We will generally follow this **sequence** of topics and readings. Main chapters or sections are listed for reading, but you will be given **other** reading assignments as needed. More specific dates will be posted in the classroom as needed. Tests are scheduled to cover “units” of materials.

First Semester

DATES	SUBJECT	Freeman 5th ed.	Labs/activities
September	Introduction to course, scientific process review, reading scientific literature introduction, What is Life? & Classification review	1	Scientific Method Phylogenetic trees
	Chemistry of Life: Water & Carbon	2.1-2.2, 2.5	pH buffer lab
	Test		
	Organic Molecules- Proteins (with enzyme intro) & Nucleic Acids	3 4	Enzymes/catalyst lab
October	Carbohydrates	5	Macromolecule testing
	Lipids & Transport across the membrane	6	Macromolecule testing Diffusion/Osmosis
	Test		
	Prokaryote Structure & Diversity	7.1 & 29	Microscope work, phagocytosis lab
Eukaryote Cell Structure and Function	7.2-7.6		
November	Protista Diversity	30	
	Test		
	Cellular Energy & Enzymes	8	ATP or Enzyme lab
	Cellular Respiration	9	Respiration lab & modeling
December	Test		
	Photosynthesis	10	Photosynthesis labs & modeling
MIDTERM EXAM –DATES TBA			

Second Semester

DATES	SUBJECT	Freeman	LAB/ACTIVITY
January	Cell specialization & Cell-Cell interactions	11, 22	microscope work, Cell communication lab
February	Introduction to Animals & Animal Form & Function	33, 42	Modeling/manipulation Possible dissections: Earthworm, Squid Arthropods, Circulation lab
	Test		
	Animal Movement	48	
	Metabolism/Digestion	44	
March	Test		
	Water/salt balance in animals	43	
	Circulation & Gas Exchange	45	
	Test		
Rat Dissection (with Practical Exam the day after lab completion)			
April	Nervous systems in Animals	46	Brain dissection
	Sensory systems	47	Eye dissection
	Test		
May	Animal Behavior & Ecology	53	animal observations/behavior lab
	Plant form & Function	37	Microscope work
	Plant Sensory Systems, Signals, & Responses	40	Tropism labs
	Test		
	Population & Community Ecology	54,55**	
** these chapters are often blended with the 3 previous ones to reinforce interactions among species.			
FINAL EXAM			