

Biology Seminar KAP: North Ridgeville High School 2015-16

Biology 115: Energy in Living Systems, Kenyon College

Ms. Katoa

Email: elizabethkatoa@nracs.k12.oh.us

Website: <http://teachersites.schoolworld.com/webpages/EKatoa/>

Welcome to Biology Seminar KAP! This fast paced year long 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)

Kenyon College liaison: Dr. Kathryn Edwards

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

- 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. Further details will be given in class.

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>
Written Assignments (Labs, Articles, Projects)	30%
Classwork/Participation & Discussions	10%
Online assignments/tutorials	10%
Tests & Quizzes	50 %

- Expect to have more than one assignment to work on at any given time. Some handouts/review guides will be posted on my website 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 these 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.**
 - Quizzes can be unannounced.
 - There will be a Midterm and a Final Exam (no exemptions)

Textbook:

Biological Science 5th edition (Freeman). Your text will be assigned as an electronic version only. MasteringBiology (Pearson) is the web-based platform by which you will access your text and online assignments. There are some older print editions available for use in class or temporary signing out. If you prefer your own print copy, check online for new or used (a lot less expensive!) books to purchase.

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:** I believe in the honor system and I will assume that the work that you turn in will be exclusively yours. Some written work will be submitted through Turn-it-in.com or similar programs. 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 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.

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 or on my website as needed.

First Semester

DATES	SUBJECT	Freeman	Labs/activities
August	Introduction to course, scientific process review , reading scientific literature introduction, What is Life? & Classification	1	Scientific Method Phylogenetic trees
September	Chemistry of Life: Water & Carbon	2.1-2.2, 2.5	pH buffer lab
	Organic Molecules- Proteins (with enzyme intro) & Nucleic Acids	3 4	Enzymes/catalyst lab
	Test		
	Carbohydrates	5	Macromolecule testing
	Lipids & Transport across the membrane	6	Diffusion/Osmosis
Test			
October	Prokaryote Structure & Diversity	7.1 & 29	Culturing bacteria, Microscope/viewing slides
	Eukaryote Cell Structure and Function	7.2-7.6	
	Protista Diversity	30	
Test			
November	Cellular Energy & Enzymes	8	ATP or Enzyme lab
	Cellular Respiration	9	Respiration lab & modeling
Test			
December & January	Photosynthesis	10	Photosynthesis lab & modeling
	Cell-Cell interactions	11	Cell communication lab
MIDTERM EXAM			

Second Semester

DATES	SUBJECT	Freeman	LAB/ACTIVITY
January	Cell specialization	22	microscope work
	Introduction to Animals	33	
February	Animal Form & Function	42	Modeling/manipulation Possible dissections: Earthworm, Squid Arthropods, Heart Circulation lab
	Test		
	Animal Movement	48	
	Metabolism/Digestion	44	
	Test		
March	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
	Animal Behavior & Ecology	53	animal observations/behavior lab
Test			
May	Plant form & Function	37	Microscope work
	Plant Sensory Systems, Signals, & Responses	40	Tropism labs
	Test		
	Population & Community Ecology	54,55	Population studies, field methods?
	Conservation & Biodiversity	57	
FINAL EXAM			