MR. AURIN **DUBLIN JEROME HIGH SCHOOL**

2009-2010

KAP BIOL 115/AP BIOLOGY COURSE SYLLABUS

***COURSE**: YEARLONG, 2 PERIODS/DAY*

Course Overview: KAP/AP Biology is the equivalent to a first-year biology course taken by biology majors. The course has been structured to follow the College Board Course description with minor changes. The course also meets the appropriate requirements of Kenyon College. Biology is a subject that is broad in scope and is difficult to cover in a year's time. Therefore, the focus will be on the following content-oriented objectives (The College Board, 2001).

At the conclusion of the course, the student should understand:

- The dynamic nature of living things, including the types of biomolecules and how they interact to produce the flow of energy necessary for life;
- The hierarchical organization of structure and function within living things, from molecules to cells to organism;
- The reproductive process by which hereditary information flows from one generation to the next at the levels of molecules, cells and organisms;
- The ecological relationships among living things and the physical environments that determine the abundance and distribution of species; and
- The nature of organic evolution as a scientific theory and as the central idea in biology that explains the unity and diversity of all living things.

Special Course Additions:

1. Students will be expected to read from primary source literature as well as a biologically themed book during the year.
2. Students will conduct a variety of labs prescribed by the College Board for AP as well as a variety of lab work to extend understanding of concepts covered in class.

Text:

Campbell, Neil A., J. Reece, ET. AL. Biology (A.P.* Edition), 8th edition (2009)

Additional Resources:

Addison-Wesley. "Campbell Biology Gateway." [online] <www.campbellbiology.com>

Note: Students will use a variety of primary source literature articles throughout the year.

SEMESTER I

WEEKS		TOPIC	CHAPTERS
1-3		Animal Behavior and Ecology	50-55
	AP *Lab 11*	*Animal Behavior*	
	AP Lab 12	*Dissolved Oxygen and Aquatic Primary Productivity*	
4-5		Biochemistry	2-5
	Lab	*Organic Molecules Modeling Activity*	
	AP Lab 2	*Enzyme Catalysis*	
6-8		Cell Structure and Function	6-7
	AP Lab 1	*Diffusion and Osmosis*	

9-10		Energetics	8-10
	AP Lab 4	*Plant Pigments and Photosynthesis*	
	AP Lab 5	*Cell Respiration*	
11-12		Cell Reproduction	12-13
	AP Lab 3	*Mitosis and Meiosis*	
		Meiosis Role Play	
13-14		Classical Genetics	14-15
	AP Lab 7	*Genetics of Organisms*	
15-17		Molecular Genetics	16-21
	AP Lab 6b	*Molecular Biology-Restriction Analysis with Gel Electrophoresis*	
	AP Lab 6a	*Molecular Biology-Bacterial Transformation*	
18-20		Evolution and Embryology	22-24, 46,47
	AP Lab 8	*Population Genetics and Evolution*	
	Lab	*Frog and Sea Urchin Embryonic Development*	
21		**SEMESTER I EXAM**	Cumulative

SEMESTER II

WEEKS		TOPIC	CHAPTERS
1		Biodiversity	25-26
2-3		Prokaryotes, Protists, and Fungi	27-28, 31
	Lab	*Microscope analysis of prepared and live organisms*	
		Student Research Project	
4-6		Plants: Diversity, Anatomy and Physiology	29-30, 35-39
	AP Lab 9	*Transpiration and Flower Dissection*	
7		Animal Diversity	32-34
	Lab	*Comparative Anatomy Dissection*	
8-17		Animal Form and Function	11,21, 40-49
		❑ Locomotion and Nutrition	40-41
		❑ Circulation and Gas Exchange	42
		❑ Body's Defenses	43
		❑ Chemical Controls	11, 45
		❑ Reproduction and Development	21,46-47
		❑ Homeostasis and Nervous System	44, 48-49
	AP Lab 10	*Physiology of the Circulatory System*	
	Lab	*Animal Tissues*	
	Lab	*Organ Dissections (eye, brain, heart)*	
18		**KAP FINAL EXAM/AP EXAM**	