Syllabus: Accelerated Biology 2012-2013
Marquette University High School
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Text:***Biology***. Miller and Levine. Boston: Pearson. 2010.
Website: http://www.biology.com

Description of the Course: The first year of biology is designed to facilitate an understanding of the patterns and interrelationships of the natural world. During the first quarter, emphasis will be on scientific methodology, the structure and function of cells and the energy processes of life. It will also cover a unit on ecology and the role of humans in our environment. The second quarter studies the continuance of life through DNA and Genetics. The second semester starts with the process of evolution and then looks at different life processes through the animal kingdom ending with an in depth study of human physiology. Several topics are supported by related laboratory investigations or activities that illustrate the topic we are studying. In addition to these core aspects of biology, the class will spend time advancing group work skills, exploring the moral/ethical side of science, developing technology skills and working on good study techniques. The accelerated class goes into more depth and covers more topics than the regular biology class.

Intended Outcomes for Student: The goal of the class is three-fold. The most basic part of the course is to gain a fundamental knowledge of biology and an understanding of lab procedures. Secondly, a moral element will be added to the class. Students will be able to discuss and argue the ethics and moral implications of many of the dilemmas facing scientists. Finally, attention will be given to the overall development of the student in the grad at grad areas. It is a significant goal to create balanced and well rounded students.

Required Materials: Students will need to bring a pen and pencil, notebook and text book to every class. They are all very important and "I forgot it" is not acceptable. <u>Work will not be accepted on paper with notebook fringes.</u> So either get a notebook with perforations or carry a supply of loose-leaf. You will need MUHS approved goggles for one or two labs during the year. An assignment notebook is important for organization.

Expectations for Classroom Conduct: By this point in your academic careers, I expect you to know what good classroom behavior is. Rather than write an exhaustive list let me phrase it this way—Nothing but excellent behavior is acceptable.

Grading Policies: The letter grading scale is different than that in the Student Handbook. The following non-rounded ranges will be used...

98, 99, 100: A+	88, 89, 90: B+	78, 79, 80: C+	68, 69, 70: D+
94, 95, 96, 97: A	84, 85, 86, 87: B	74, 75, 76, 77: C	64, 65, 66, 67: D
91, 92, 93: A-	81, 82, 83: B-	71, 72, 73: C-	60, 61, 62, 63: D-
			Less than 60: F

The semesters are based on a total points. Points are roughly broken up according to the following:

Homework: 30%
Labs/Quizzes: 25%
Tests/Projects: 45%

The semester grade-the only grade that is recorded on a permanent transcript-is calculated as follows:

	If the Final Exam helps your grade	If the Final Exam hurts your grade
Semester Grade	70%	80%
Final Exam	30%	20%

Late Work Policy: Work is due either at the beginning of class or in the case of electronically submitted work at a specified time. If it is not ready to turn in when it is collected, it is late. Homework that is one day late will be docked 50%. Late credit is given if the work is turned in by the beginning of the next class. If it is electronic work, late credit will be given until 24 hours after the specified time. After that, the grade is a zero. Students get one chance a semester to have a late assignment changed to a 10% deduction. That regrade will occur at the end of the semester and will be given to the most helpful assignment. Projects and reports will not be accepted after the due date. Homework and projects should never be turned in late. Repeatedly failing to meet due dates will seriously reduce a final grade.

Student Work: (points are approximate)

-weekly summary (individual, via email) 10 points

Students will submit a weekly email listing what he learned that week. It will include a student written review of main concepts, vocab and details the student finds relevant.

-unit summary (group, on video) 20 points

Students will also work in groups to prepare a similar summary of learning. The group summaries will cover a unit and will be a part of test preparation.

-lab report (partner, on scanned paper) 5-10/30 points

When we have labs, they will be completed on paper and then scanned to turn in electronically. Most labs will have only a short list of questions. One lab each semester will involve a full, formal lab report.

-book problems (individual, checked by homework quiz on paper) 20 points

Questions from the book will be assigned via a packet handed out at the beginning of chapter. Students need to work on assignments in the packet which will have due dates on the class website. On an announced day near the end of a unit, we will have a quiz that will ask the student to fill in several questions from the packet.

-quizes (individual, on paper) 15 points

Quizzes will be announced and are usually a majority of fill in the blank questions with a few short answer questions.

-tests (individual, on scantrons) 40-65 points

Tests will end each unit and will be multiple choice.

Expectations:

1. Arrive to class on time and prepared. I mentioned this earlier in the syllabus, and I will mention it again. Do not forget to bring your class materials. When we have labs, there might be special items to bring. I will always let you know about these in advance.
2. One secret to a good grade is very tricky …DO YOUR HOMEWORK. Yes, believe it or not, many students actually do poorly in classes because they don't do their homework. Don't be one of these students. Last year, the guy that got among the highest grades on tests got a C because he didn't do his homework. You can count on some form of Biology homework almost every night this year. *Paper homework will be collected at the beginning of class*.
3. If you are absent, it is your responsibility to talk to me about makeup work. If you do not talk to me, the grade will become a zero. Don't let this happen. If you know you will be gone in advance, please tell me. Trust me, that will make it easier on you.
4. I expect you to work hard. This stuff isn't easy, but I trust you can do it if you put some effort into it.
5. Be confident in yourself and show respect to everyone in the classroom.
6. All school policies will not even be an issue because you would never even think of breaking one of those rules.
7. Last and very important: If you have a question **ask it!** This applies to anything, not just biology. Science thrives on curiosity and questioning. You could not possibly learn more if you are asking questions. ***Waiting until after an assignment is due to ask a question is too late for me to give a helpful answer.

Other Policies:

Pop Quizzes—

Cheating—

Leaving the room—

Labs—

Your ideas and input—

Course Outline

First Semester

I. Introduction and Chemistry
--We will look at the themes and chemistry that surface throughout the year.
Lab: Microscope Size
Lab: Enzymes and Reaction Rates
Lab: Macromolecule Models
Lab: Water/pH
Lab: Water Models

II. Ecology
--A new unit this year will survey the science of ecology. Some of the topics covered will be energy and matter cycles and the effect of humans on the environment
Lab: Abiotic Factors
Lab: Fertilizers effect on Algae
Lab: Reduce/Reuse/Recycle

III. The Cell and Cellular Reproduction
--We will look at how the cell works internally, including a study of organelles and how the cell makes more of itself.
Lab: Mystery Bag
Lab: Microscope observation of cells
Lab: Cell Model
Lab: Microscope observations of mitosis
Lab: Surface area

IV. Energy
--We will look at the cell's energy processes, photosynthesis and cellular respiration.
Lab: Photosynthesis in Elodea
Lab: Dissolved oxygen in photosynthesizing and non-photosynthesizing Elodea

V. The Code of Life
--In this unit we will study DNA as a molecule and a method of passing on genetic information. We will also study the process of converting the code contained in DNA into functional proteins.
Lab: DNA Extraction and Isolation
Lab: DNA Modeling
Lab: RNA Code breaking

VI. Genetics and Heredity
--The principles of genetic inheritance and the power of the gene will be explored. We will start with simple single trait examples that laid the basis for the science of genetics. Then we will look at the complex problem solving that accompanies true genetic studies. Finally, we will look at the science of genetic engineering.
Lab: Genetics and Probability
Lab: Human Traits
Lab: DNA and crime forensics