



Southern Lehigh School District

High School Syllabus

Honors Biology

2013-2014

Course Description:

Honors Biology has been developed to meet the state standards for Science & Technology and Ecology & Environment.

Honors Biology is for the college bound student who wants to be challenged and is dedicated to working hard. Throughout the course, students will perform experiments that will enhance and supplement concepts covered. Students will then have to display mastery of these concepts in lab reports and other assessments.

The following topics are discussed and studied throughout the Honors Biology course: Scientific Method, Scientific tools, Metric System, Chemistry of Macromolecules, Cells, Cell Cycle, Meiosis, Genetics, DNA and RNA, Evolution, and Ecology.

Course Content:

Science of Biology:

- What is science
- How scientists work & the scientific method
- Characteristics of life
- Scientific tools and measurement

Chemistry of macromolecules

Cell Structure & Function:

- Cell theory & types
- Cell structures form & function
- Photosynthesis
- Cellular Respiration
- Movement into/out of cells
- Levels of cellular organization

Cell Growth & Division:

- Limits to cell growth
- Cell division (Mitosis)
- Virus Cycles
- Regulating the cell cycle

Genetics:

- Several patterns of inheritance
- Probability & punnett squares
- Meiosis
- Genetic technologies & their impact

DNA/RNA:

- DNA Discovery
- DNA/RNA Structure
- DNA Replication
- RNA transcription/translation
- Mutations

Evolution:

- Contributing scientists
- Natural selection
- History of Life
- How populations evolve

Ecology

- Ecosystems
- Population Dynamics
- Relationships
- Biogeochemical Cycles
- Human Impact
- Succession
- IPM
- Threatened, Endangered, and Invasive Species
- Natural resources (technology, policies, management, conservation)

Required Textbooks and/or Other Reading/Research Materials

Biology by Miller & Levine, Pearson, 2010 (students will each have access to a digital version of this text)

Science World Magazine by Scholastic

Course Requirements:

Students are expected to take an active role in their education by consistently completing independent reading and note taking assignments both in class and at home, conducting laboratory investigations and reporting results and analysis through lab reports, and being responsible for their own appropriate classroom and laboratory behavior. Failure to complete assignments and submit them on time will adversely affect the student's grade

Grade Components/Assessments:

The grades will be based on a point system that is converted into overall percentages.

The following methods will be used to assess and evaluate student performance:

- Homework: 5-10%
- Classwork: 5-10%
- Labs: 20-25%
- Test/quizzes: 30-35%
- Projects/papers: 30-35%

Throughout the year percentages may change depending on the content covered that quarter. Students should expect to devote an average of 60 minutes to homework/studying each night.

Each marking period is worth 20% of a student's overall grade. The midterm and final exam are each worth 10% of a student's overall average:

Quarter 1	20%
Quarter 2	20%
Midterm	10%
Quarter 3	20%
Quarter 4	20%

Final 10%

Required Summer Reading/Assignments:

There are no summer reading requirements for this course.