Biology Syllabus

**Course description**: Science is the systematic study of the Universe. In Biology, we will investigate topics in both life and physical sciences as they relate to living things. We will learn about organic molecules and chemistry, cells, genetics, evolution, classification of living things, and ecology. Throughout the course, writing and lab activities will be important. The emphasis of this course is on problem solving, methods of science, and impacts of science on everyday life.

**Colorado Science Standard and Extended Evidence Outcome accomplishments expected of students**:

**Physical Science—**Students know and understand common properties, forms and changes in matter and energy.

* Observe, explain, and predict natural phenomena governed by Newton's laws of motion, acknowledging the limitations of their application to very small or very fast objects
* Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions
* Apply an understanding that energy exists in various forms, and its transformation and conservation occur in processes that are predictable and measurable

**Life Science—**Students know and understand the characteristics and structure of living things, the processes of life and how living things interact with each other and their environment.

* Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems’ dependence on natural selection
* Explain and illustrate with examples how living systems interact with the biotic and abiotic environment
* Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment
* Explain how biological evolution accounts for the unity and diversity of living organisms

**Earth Systems Science—**Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space.

* Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet
* Evaluate evidence that Earth’s geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system
* Describe how humans are dependent on the diversity of resources provided by Earth and Sun

**Biology Essential Outcomes**:

1. The student will apply the processes of scientific investigation and design, conduct, analyze, communicate about, and evaluate such investigations.
2. The student will use proper technique in making laboratory measurements and calculations involving data.
3. The student will demonstrate an understanding of basic chemistry and organic molecules.
4. The student will relate the movements of the moon and sun to effects on Earth.
5. The student will describe the structure and function of cells, and the hierarchy of structures of living things.
6. The student will demonstrate an understanding of genetics and heredity.
7. The student will understand the unifying biological concept of evolution.
8. The student will use knowledge of biological concepts as well as abiotic factors to explain interrelationships in ecosystems.
9. The student will use knowledge of biological concepts to investigate the dependence of human populations on ecosystems.

**Class rules**:

1. Treat everyone, their property, and all class equipment with respect. I expect every person in the class to have and to show respect for him- or herself and for others. That means that all of us will strive to respect the possessions, personal space, feelings and ideas of everyone in the classroom and in the school. Everyone should be courteous and understanding toward fellow classmates.
2. Participate appropriately in class. Bring what you need to class: notebook, writing utensil, laptop/Chromebook.
3. Use all equipment properly. This includes both living and preserved specimens, as well as the technology used to investigate them. Students are required to read, sign and implement a Laboratory Safety Contract and take a safety quiz before they may participate in lab activities.

**Instructional and grading methods to be used**:

1. Reading assignments—there will be text, printed and online (Internet) reading assignments for this class. Usually reading assignments have associated problems sets or worksheets. Worksheets and problems are due on the day indicated, and will not be accepted more than one (1) week late. Work turned in one (1) day late will carry a grade reduction of ONE LETTER GRADE (10%). Work turned in more than five (5) school days late will receive a score of ZERO. If a student is absent, it is that student’s responsibility to obtain any assignments that may have been made by contacting the teacher either before or after class.
2. Notebook—students MUST have a notebook dedicated to this class, which the student must bring to class every day. If a student is absent, it is that student’s responsibility to get and understand any notes or work that the student missed. Notebooks may be used on tests.
3. Laboratories—labs are a mandatory part of this class. Laboratory reports are required for all labs. If a student is absent for a lab, that student must contact the teacher to make arrangements for a time before or after school so that the lab may be made up at the convenience of the teacher. Labs have safety considerations, and all students must read, sign and implement the Laboratory Safety Contract before participation is allowed.
4. Class participation—each student is awarded 5 points per day for participation. These points may be lost by disruptive behavior. Be in class and be on your best behavior so that all of us may learn.
5. Examinations—there will be examinations over content areas. Byers High School grading system applies. The semester exam in this class is cumulative in content, and makes up approximately 10% of the semester grade.

The textbook this year is an ebook, with print support in the classroom. Virtual labs and other exciting add-ons can be accessed by all students. The Holt McDougal Online community login is at http://my.hrw.com/. Each student will have a unique username and password, which will be distributed in class.

If you have questions or concerns about the class or topics, please ask! Contact me via email at: greenman.elizabeth@byers.k12.co.us. The information (class schedule, reading assignments, etc.) will be posted on my web site at: [www.ergreenman.com](http://www.ergreenman.com) . Please use this resource to help you in class!

After reading, sign and date the section below. Return it for your first grade in class!

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(please print student name)

syllabus contents for Biology.

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(student signature) (date)

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(please print parent/guardian name)

syllabus contents for Biology.

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(parent/guardian signature) (date)

IMPORTANT! Please provide an active email address for parent/guardian. This is essential to make certain parent/guardian is informed about missing/late assignments, as well as any schedule changes necessary.

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