

Biology Honors SY 2009-2010

Mrs. Kristin B. King

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Office Hours (Planning): Room 37-100; 3rd & 5th period planning

Help Hours: Wednesday, 3:30 – 4:00 PM, *Alternative times available with prior arrangement

Summary:

The purpose of this course is to provide exploratory experiences, laboratory and real-life applications in the biological sciences. The content includes the nature of science (matter, energy, and chemical processes of life), cells (biology, reproduction, and communication), genetics (principles, molecular basis, diversity, and biotechnologies), levels of organization (classification, and taxonomy), structure, function, and reproduction of plants, animals, and microorganisms, behavior of organisms, (interdependence of organisms, humans, and the environment), biological selection, adaptations, and changes through time, and also agricultural, food, and medical technologies and careers in biological fields. Laboratory investigations are an integral part of this course and include the use of scientific research, measurement, laboratory technologies, and safety procedures.

Honors Students:

✦ **Typed lab reports** for specified labs using scientific method.

✦ An in-depth 5 page **research report** on a current science event in ecology, microbiology, genetics or other science related topic. *One report per semester.* (**Cover page, References, APA format, double spaced, Times or Arial font**).

✦ **Year End Portfolio** based on the 11 New Generation Science strands (link found on mrskingsbioweb.com site). This portfolio will include one representation for each strand of your best work you've completed in class (so save all your returned & graded work!) that correlates with a specific strand, and an one page typed reflection on each of the eight entries. The format will be discussed in class and is also posted on my website under the "writing in science" link.

Text: Holt et al (2006). Modern Biology (Owl Book)

Labs: Due to the large amount of time required for set-up, it is essential that you are always present on lab days. Follow lab procedures and safety guidelines at all times. Horseplay is **never** permitted and will be dealt with expeditiously. Lab reports are a requirement of this class. Everyone is expected to keep good personal records of findings in the lab and relay that information in a lab report. Typed lab reports may be submitted via email to me, however, make sure you print a hard copy just in case of transmission errors.

Testing: **Tests** are given as an assessment of student knowledge in Biology. The format of tests usually consist of 50 multiple-choice questions and occasionally an essay question to determine depth of knowledge. **Quizzes** are given at random to assess science comprehension. The majority of tests and quizzes are taken in class, although there will be opportunities to take online versions. **Exams** are comprehensive and given at the end of first and second semester (normally 100 -150 multiple choice questions).

Semester 1

Foundations of Biology

- Chapter 1 The Science of Life
- Chapter 2 Chemistry of Life
- Chapter 3 Biochemistry

Cell Biology

- Chapter 4 Cell Structure and Function
- Chapter 5 Homeostasis and Cell Transport
- Chapter 6 Photosynthesis
- Chapter 7 Cellular Respiration
- Chapter 8 Cell Reproduction

Genetics and Biotechnology

- Chapter 9 Fundamentals of Genetics
- Chapter 10 DNA, RNA, and Protein Synthesis
- Chapter 11 Gene Expression
- Chapter 12 Inheritance Patterns and Human Genetics
- Chapter 13 Gene Technology

Semester 2

Evolution

- Chapter 14 History of Life
- Chapter 15 Theory of Evolution
- Chapter 16 Population Genetics and Speciation
- Chapter 17 Classification of Organisms

Ecology

- Chapter 19 Populations
- Chapter 20 Community Ecology
- Chapter 21 Ecosystems
- Chapter 22 Humans and the Environment

Microbes, Protists, and Fungi

- Chapter 23 Bacteria
- Chapter 24 Viruses
- Chapter 25 Protists
- Chapter 26 Fungi

Invertebrates & Vertebrates Overview (Dissection Series)

- Structure and Function
- Chapter 33 - Chapter 43

Human Biology (Student Symposium)

- Organ Systems
- Chapter 45 - Chapter 51

Revisions may be made due to time constraints