

**Advanced Biology**  
**Course-Wide Syllabus**  
**2009 - 2010**

Advanced Biology is designed to be an equivalent to a college introductory Biology course. The class is conducted at the college level and students are expected to work accordingly. The main goal of the course is for students to have a good understanding of the concepts of Biology and be able to relate these concepts to themselves and the world around them. Advanced Biology includes a significant laboratory component of laboratory exercises that set a standard for experimental and quantitative work fundamental to success. This course is taught at a college level, it is not just a harder high school course.

Advanced Biology is an introductory course designed for students who plan to attend a college. The course will provide students with knowledge of the fundamental characteristics of living matter from the molecular level to the ecological level.

**Prerequisite:**

Students must have a B+/90% or better in Honors Biology or an A-/93% or better in Biology to take Advanced Biology.

**Course Objectives:**

The following are broad objectives that will be covered in Advanced Biology. Specific objectives will be provided at the beginning of each chapter or unit covered.

Upon completion of Advanced Biology, students will be able to:

- Apply the scientific method to experiments by analyzing and interpreting the data obtained.
- Understand the concept that science is a way of knowing.
- Demonstrate the use of basic chemical principles as they apply to the study of Biology.
- Describe the four major biological macromolecules along with their building blocks and their specific functions in living organisms.
- Describe the characteristics of prokaryotic and eukaryotic cells and explain the functions of their specific structures.
- Distinguish between photosynthesis and cellular respiration and explain the role of enzymes as they relate to energy transformations.
- Compare and contrast the processes of mitosis and meiosis.
- Demonstrate an understanding of Mendelian principles by solving problems in human genetics as well as explain the transmission of genetic information.
- Demonstrate an understanding of DNA and RNA in gene expression and describe the molecular structure and replication of the genetic material.
- Describe the mechanisms through which evolution occurs and demonstrate knowledge of evolution.
- Explain the diversity of life on earth by demonstrating an understanding of speciation and extinction.

**Text:** *AP Edition Biology*, Campbell and Reece, 7<sup>th</sup> Edition, Pearson, 2005

**Instructional Methods:**

Peninsula Catholic High School is set up on a 4 x 4 block schedule. Each block is 90 minutes long. Typically, there will be three days devoted to lecture and other class room activities and two days devoted to lab activities. Additional methods that may be used would be group activities, discussion, research opportunities, projects, quizzes and tests. Extra credit will not be given in Advanced Biology class.

In the laboratory, students will be present scientific techniques that will be used in enhance the concepts that are presented during lectures. Students will conduct experiments using the scientific method. Students will be assigned a lab area and a lab group. Labs will be conducted with the group assigned. Visiting other groups and discussion with other lab groups is not allowed. All lab reports are written as an individual effort. Data that is collected will be used in the report; however, charts, graphs, tables etc. are created by the individual student. Lab reports must be unique to each student.

**Evaluation:**

Grades will be evaluated using the following:

- \* Test/Quizzes                      35%
- \* Homework/Classwork            30%
- \* Lab                                      35%

The final exam will be calculated at 20% of the overall grade.

Students will be assigned work from the textbook and independent topics related to subject matter. Lab reports are always individual: however, the lab activities are done with partners. Announced and unannounced quizzes will be given. Test will be given after each chapter/unit. All classwork assignments are due at the end of the class period in which the assignment was made. All homework assignments are due at the beginning of the class on the following day.

**Classwork Environment:**

Please be aware of the rules set up in the PCHS student handbook. All handbook rules apply. Students will write the honor code at the top of all papers. An environment that is safe and conducive to learning will be maintained by the instructor and the students.

**Late/Make-up work:**

The Parent/Student handbook gives general guidelines for making up missed work. The primary responsibility for making up missed work rests with the student. The following specific procedures for this should be noted. For absences of fewer than three academic days – All homework is due during the period of absence will be submitted upon the return to class. Missed test, quizzed, or labs will be scheduled with the teacher. Failure to show for a scheduled make up of work will result in a grade of zero. For, longer, unplanned absences – Students will submit a written proposal with a timetable for

the makeup of missed work. The proposal/timetable will be reviewed and approved or amended by the teacher, and must then be executed by the student. Failure to meet the timetable will result in a grade of zero being assigned for the particular piece of classwork, homework, quiz, test or lab. For extended planned absences – Students are responsible for determining, completing and submitting all assignments due during the absence prior to their departure.

**PCHS Honor Code:**

The PCHS Honor Code is based on the premise that PCHS students will not cheat, lie, or steal, nor tolerate those who do. During the course, the following expectations will apply: Test and Quizzes: All work must be performed individually using only the resources specifically authorized by the teacher. Lab Reports: All work must be performed by the student. Students will generally be assigned to a group for lab work. Students or students in a group may work cooperatively with one another, however, their lab reports may not be a copy of some other students work. Homework assignments: Homework assignments are given as a means to enhance the learning and mastery of the process. By their nature, homework assignments are “open book.” On the other hand, the mere copying of another’s work for submission and grading is prohibited by the Honor Code.