

**ADVANCED BIOLOGY**  
**2009-10 COURSE SYLLABUS**  
**Mr. Christopher**

**Course Description:** Advanced Biology is designed to develop critical and creative thinking skills for the college-bound student and to develop scientific literacy and thinking skills for everyday life. The student will acquire a clear understanding of key biological concepts and ideas with emphasis on scientific problem-solving and the inquiry process.

**Instructional Philosophy:** It is my goal to provide students with a variety of activities that will challenge and interest them so that they may be successful participants in the real world. It is also important that I teach objectives that must be met at the Advanced Biology level so that students will gain a vast knowledge of the subject matter.

**Major Course Goals:** The student will demonstrate an understanding of the following concepts:

1. The process of scientific inquiry and investigations.
2. The concept of maintaining diversity among ecosystems.
3. The structure and organization of the cell
4. The differences between photosynthesis and cellular respiration
5. The differences in function of mitosis and meiosis
6. The classification of organisms and the diversity of life
7. The mechanisms of heredity and the application to aspects of our everyday life
8. The step of reproduction, growth, and development under the influences of genetics
9. The concepts developed by the literacy and numeracy committees.

**Major Course Objectives/Benchmarks by Quarter:** Mastery of the course objectives is required with a minimum 70%.

**First Quarter**

1. Develop abilities in science including scientific inquiry and investigations.
2. Examine what the goal of Science is
3. What are the characteristics of living things
4. Describe the two types of microscopes & two common laboratory techniques to observe microorganisms
5. Describe the nature of matter, types of bonds, molecules & organic compound functions
6. Demonstrate an understanding of ecology & the biological cycles

**Second Quarter**

1. Describe the role of climate.
2. Be able to understand the role of an ecosystem, biome & biosphere
3. Explain what a population is and how populations grow & how they are limited to growth.
4. Describe why humans are important and detrimental to our biosphere.

**Third Quarter**

1. Describe the structure and function of cells including the differences between different cell types.
2. Examine the relationship between photosynthesis & cellular respiration in terms of energy.

3. Compare and contrast the phases of cell division as well as the difference between mitosis & meiosis
4. Compare and contrast the chromosomal and molecular basis of inheritance including discoveries made by Gregor Mendel.
5. Focus on DNA structure and function in eukaryotic cells.

#### **Fourth Quarter**

1. Examine the organization & classification of living organisms.
2. Describe reproduction, growth, & development in terms of genetics.
3. Relate the theories of heredity with everyday life.

#### **Required/Recommended Reading:**

1. Students will be required to read their textbook.
2. Students will be required to read their laboratory and be prepared before class.
3. Students will be required to have appropriate reading material to read during all SSR times.
4. Students will read articles from scientific journals and magazines during the school year.
5. Students will participate in the literacy program by reading 300 pages of science related material.

**Major course projects and Instructional Activities:** Students will participate in the following projects and activities:

1. Students will participate in a variety of laboratory activities centered around the scientific method.
2. Students will participate in a variety of laboratory activities that will introduce them to the instruments and procedures used by laboratory technicians.
3. Students will participate in a variety of laboratory activities that will tie together our units of study.
4. Students will have a group project during the quarter that will be graded as a group and individual grades will also be given.

**Course Assessment Plan:** Students will be assessed in the following manner:

1. There will be a test and/or project at the completion of each unit of study. Test will consist of open ended constructive response questions, performance events, and objective questions.
2. Students will be required to complete homework as part of their grade.
3. A comprehensive quarter final will be given at the end of each quarter & you will be required to take the End of Course Exam for the Biology requirement .

#### **Classroom Expectations:**

1. Be on time and in your seat when the bell rings.
2. Be prepared at the beginning of class. Have your textbook, notebook, homework, and a pen or pencil. On SSR days, you must have your reading material.
3. Be respectful of all people and property in the room.
4. Read and follow all directions, as given, the first time.
5. No food or drink in the room at any time.
6. No grooming (fixing hair, make-up, etc.)
7. Keep your feet on the floor and not on the chairs.
8. Keep book bags out of the aisles and purses on the floor during class.
9. The teacher, NOT THE BELL, dismisses the class.

All discipline problems will be handled as described in the student handbook. Be sure you know the consequences for your actions in this classroom.

**Supplies and Materials Needed:** Students should have the following materials for class:

1. Notebook
2. Pen or pencil
3. Scientific calculator

**Homework Policy and Grading Scale:** Please refer to the Student Handbook for the Homework Policy. The grading scale is as follows:

|         |        |         |       |
|---------|--------|---------|-------|
| A ..... | 100-95 | C ..... | 76-73 |
| A-..... | 94-90  | C-..... | 72-70 |
| B+..... | 89-87  | D+..... | 69-67 |
| B ..... | 86-83  | D ..... | 66-63 |
| B-..... | 82-80  | D-..... | 62-60 |
| C+..... | 79-77  | F.....  | 59-0  |

**Extra Help:** If you need any extra assistance I will be available before and after school.

**Time and Place to be Reached by Parent:** If you need to contact me for any reason, please feel free to call me at 431-2616 ext 4134. I can also be reached by email at [cchristopher@central3.org](mailto:cchristopher@central3.org). Homework assignments can be found online at [new.schoolnotes.com](http://new.schoolnotes.com).