

## Advanced Biology Course Syllabus

### Instructor:

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**Required Textbook:** Desalle, R., et al. (2008). *Holt Biology*: U.S.A.: Holt, Rinehart, and Winston.

### Course Description:

The objective of this course is to develop an understanding of biological concepts using the scientific process. Explorations and application of key concepts will be conducted through lab experiments and various learning strategies including self-questioning and visual learning approaches. Student in Advanced Biology will be expected to complete a rigorous curriculum that includes the application of higher level thinking skills and writing proficiency related to the topics advanced Molecular Genetics, Cellular Energetics, and Biodiversity in addition to content prescribed by the GPS.

### Course Standards:

**SB1.** Students will analyze the nature of the relationships between structures and functions in living cells.

**SB2.** Students will analyze how biological traits are passed on to successive generations.

**SB3.** Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.

**SB4.** Students will assess the dependence of all organisms on one another and the flow of energy and matter within their ecosystems.

**SB5.** Students will evaluate the role of natural selection in the development of the theory of evolution.

### Major Course Requirements:

Participation in Exploravision or a Science Fair Project is required for this class. It will be included in the grading program and affect the average of each Advanced Biology Student. Any components of this project that are not completed in a timely manner will be given a grade of zero. Science Fair projects allow students to demonstrate creativity in science by allowing the student to choose their own topic. Science Fair projects justify how well a student can organize their own time and resources and how well they can follow instructions and work independently. These are vital learning and life skills. Finally, Science Fair projects have the potential to challenge students. Further details and a timeline will be provided as they are available from the Georgia Regional Science and Engineering Fair directors of ABAC. Only complete science fair projects will be displayed in our local science fair competition. Complete projects include 1. Backboard must be neat with minimum criteria, 2. Log book, and 3. Notebook including research paper and forms. It is the student's responsibility to read and review the current INTEL Science fair guidelines. These guidelines may be accessed at <http://www.societyforscience.org/document.doc?id=398> . This project is designed to support writing and literacy standard RST.9-10.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

### Teacher Expectations:

- Students will demonstrate proficiency in the use of science process skills through experimentation and exploratory activities.
- Students will use laboratory equipment to conduct safe and accurate laboratory work.
- Students will produce written reports of experimentation and exploratory activities in accepted formats and use precise language for presentations of procedure, tables of data, graphs, analytical methods, results, and analyses of error.
- Students will explain the role of homeostasis in maintaining life.
- Students will recognize that life has a chemical basis.
- Students will relate the complexity and organization of organisms to their ability for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism.

**Attendance:** Attendance is essential for maintaining successful progress in this course. The instructor must inform the student's family in the event of excessive absenteeism. A letter will be mailed to the parent or guardian of any student who reaches 5 unexcused absences during the school year. Subsequent absenteeism will be handled by the administration.

### Special Needs Statement:

In accordance with the Americans with Disabilities Act, arrangements will be made for students who require special assistance due to a disability. If you require some assistance, do not hesitate to inform the instructor.

### Course Grade Composition:

Each student will be graded according to their ability to execute the objectives of course components. The components of this course will be weighed in the following manner as determined by the Science Department of TCCHS.

Tests 40%  
Labs and Activities 30%

Daily Work and Quizzes 20%  
Benchmarks 10%

### Make-Up Work:

It is the students' responsibility to get any work or handouts that may be missed during an absence. Agenda sheets may be copied by borrowing a classmate's completed agenda sheet from the missed day(s). Handouts or worksheets will be available at the front desk. Any student who misses a lab, activity, quiz or test must make an appointment with the instructor to make up the missing item.

### Reading In Content Area:

In compliance with GPS science characteristics, all students will be required to read content related materials to enhance the curriculum during the third nine weeks grading period. Reading requirements include current articles and completion of *"The Double Helix"* by James D. Watson. According to SCSH9. Students will enhance reading in all curriculum areas by: Reading in all curriculum areas and reading both informational and fictional texts in a variety of genres and modes of discourse. This writing and literacy requirement is supporting standard RST.9-10.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

### **Suggested Supplies:**

2 inch binder dividers  
filler paper  
pens and pencils

highlighter  
colored pencils  
index cards

### **Standardized Testing:**

EOCT – It is a comprehensive exam that measures student achievement in the area of Biology. It will be based on the Georgia Performance Standards (GPS) listed on the first page of this syllabus. The Georgia State Board of Education adopted the EOCT Program to comply with the A<sup>+</sup> Educational Reform Act of 2000 ( O.C.G.A. § 20-2-281) . The EOCT will comprise 20% of the students' final grade.

### **Homework:**

Students should spend a minimum of 15 minutes daily reviewing class notes and complete all daily assigned homework in a timely manner. Active readers will be provided for students to keep at home. As certain pages are assigned students may complete those and tear them out to return to school for grading and review.

### **Classroom Rules:**

Students are expected to act in an orderly manner at all times.

Students must show respect for all persons including themselves at all times. Any discrepancy that a student wishes to question or discuss with the instructor must be handled during a one on one basis after class time.

As stated in the student handbook of TCCHS, students are expected to do their own work. For example, cheating consists of intent to deceive the instructor by copying from outside sources or another student. The resulting penalty for cheating will be a zero for the first offense and failure of this course for a second offense.

All students must be punctual.

Unnecessary talking must not interfere with the teaching- learning process.

Students are required to be in class during the assigned times, therefore, restroom breaks and class preparation must be handled at the appropriate times. Plan ahead.

School property must be treated with care as if it were your own.

Student seating will be maintained in a neat and orderly manner.

Food, gum, and drinks must be left outside of this classroom.

Cell phones must not be visible nor disturb class

**Course Outline:**

<b>Domain of Study</b>	<b>Topics</b>
SB1 Cells Domain	Cell Structure and Function Macromolecules Enzymes Cell Transport and Homeostasis
SB2 Genetics Domain	DNA and RNA Mendelian Genetics Cell Reproduction Genetic Variation Biotechnology
SB3 Organisms Domain	Classification Biodiversity Viruses
SB4 Ecology Domain	Biosphere Levels of Organization Interdependence of Organisms Human Impact on Environment
SB5 Evolution Domain	Evolutionary History and Trends Cladograms Phylogeny Natural Selection
EOCT Preparation	Comprehensive Domain Review