

<b>Course Name</b>	Advanced Placement Biology	<b>Course Code</b>	26.0140001 & 26.0140002
<b>School Name</b>	Lakeside High School	<b>Teacher Name</b>	Dr. Annette M. Parrott
<b>School Phone Number</b>	678-874-6702	<b>Teacher Email</b>	<a href="mailto:Annette_M_Parrott@dekalbschoolsga.org">Annette_M_Parrott@dekalbschoolsga.org</a>
<b>School Website</b>	<a href="http://www.lakesidehs.dekalb.k12.ga.us/">http://www.lakesidehs.dekalb.k12.ga.us/</a>	<b>Teacher Website</b>	<a href="http://lakesidehs.dekalb.k12.ga.us/APBiology.aspx">http://lakesidehs.dekalb.k12.ga.us/APBiology.aspx</a>

### Course Description

Primary emphasis in an AP® Biology course is to develop an understanding of the concepts rather than on memorizing terms and technical details. Essential to this conceptual understanding are the following: a grasp of science as a process rather than as an accumulation of facts; personal experience in scientific inquiry; recognition of unifying themes that integrate the major topics of biology; and application of biological knowledge and critical thinking to environmental and social concerns.

The revised AP® Biology course addresses this challenge by shifting from a traditional “content coverage” model of instruction to one that focuses on enduring, conceptual understandings and the content that supports them. This approach will enable students to spend less time on factual recall and more time on inquiry-based learning of essential concepts, and will help them develop the reasoning skills necessary to engage in the science practices used throughout their study of AP Biology.

The AP® Biology Examination continues to emphasize the concepts and themes of biology. Less weight is placed on specific facts than on the “big ideas” that tie them together. AP Biology defines a theme as an overarching feature of biology that applies throughout the curriculum. For example, the theme of energy transfer helps students connect topics as diverse as cellular respiration and ecosystem dynamics. Concepts are the key ideas, restricted in scope to a certain topic. Themes cut across the topics.

Students will be expected to have mastered the “basics” of biology, as this is a second year biology course. This course will focus on the applications of biological concepts, and students will be expected to demonstrate their understanding of those applications through detailed laboratories, and projects completed outside of class. This course requires commitment, discipline, attention to detail, dedication and the willingness to accept and act on constructive criticism.

The main goals of the AP Biology course at LHS are to:

- help students develop a conceptual framework for modern biology
- help students gain an appreciation & excitement for science as a process and biology as a discipline.
- help students develop the study skills and strategies necessary to be successful at post-secondary school studies
- help students score a 4 or higher on the AP exam

**Course Prerequisites:** Successful completion of High School Biology and Chemistry

**Curriculum Overview:** The following academic concepts will be covered. **THIS IS ONLY A GUIDE AND IS SUBJECT TO CHANGE.**

<b>CURRICULUM OVERVIEW; Note that all Big Ideas are inter-related and taught throughout the school year.</b>	
Big Idea 1 – Evolution: The process of evolution drives the diversity and unity of life.	
Big Idea 2– Cellular Processes: Energy and Communication: Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain dynamic homeostasis	
Big Idea 3– Genetics and Information Transfer. Living systems store, retrieve, transmit, and respond to information essential to life processes.	
Big Idea 4: Interactions Biological systems interact, and these systems and their interactions possess complex properties.	

### BOARD-APPROVED INSTRUCTIONAL MATERIALS

Title	Neil A. Campbell and Jane B. Reese's Biology, 8th Edition.
ISBN	978-0-13-135691-7
Replacement Cost	<b>\$109.97</b>
Online book and/or resources	We will be using the textbook as a supplemental reference to lecture notes, and the CD-ROM as test review and remediation.
Online student access code (school specific)	



**GRADING SYSTEM:** The DeKalb County School District believes that the most important assessment of student learning shall be conducted by the teachers as they observe and evaluate students in the context of ongoing classroom instruction. A variety of approaches, methodologies, and resources shall be used to deliver educational services and to maximize each student's opportunity to succeed. Teachers shall evaluate student progress, report grades that represent the student's academic achievement, and communicate official academic progress to students and parents in a timely manner through the electronic grading portal. **See Board Policy IHA.**

GRADING CATEGORIES	*GRADE PROTOCOL
<b>Formative Assessment (Pre-Assessment) – 0%</b>	<b>A</b> 90 – 100 ~ <b>P</b> (pass)
<b>Assessment During Learning (Notebook, Quiz, Project) – 25%</b>	<b>B</b> 80 – 89 ~ <b>F</b> (fail)
<b>Guided, Independent, or Group Practice (Classwork, Homework, Lab) – 45%</b>	<b>C</b> 71 – 79
<b>Summative Assessment or Assessment of Learning (Post Test, Culminating Project) – 30%</b>	<b>D</b> 70
	<b>F</b> Below 70

**Notes:**

\*English Learners (ELs) must not receive numerical or letter grades for the core content areas in elementary and middle school during their first year of language development. A grade of CS or CU must be assigned. This rule may be extended beyond the first year with approval from the EL Studies Program. English Learners must receive a grade for ESOL courses.

~Elementary schools will utilize P (pass) and F (fail) in Health/Physical Education, Music, World Languages, Visual Arts and Performing Arts.

DISTRICT EXPECTATIONS FOR SUCCESS	
<b>STUDENT PROGRESS</b>	Semester progress reports shall be issued four and a half, nine and thirteen and a half weeks into each semester. The progress of students shall be evaluated frequently and plans shall be generated to remediate deficiencies as they are discovered. Plans shall include appropriate interventions designed to meet the needs of the students. <b>See Board Policy IH.</b>
<b>ACADEMIC INTEGRITY</b>	Students will not engage in an act of academic dishonesty including, but not limited to, cheating, providing false information, falsifying school records, forging signatures, or using an unauthorized computer user ID or password. <b>See the Code of Student Conduct - Student Rights and Responsibilities and Character Development Handbook.</b>
<b>HOMEWORK</b>	Homework assignments should be meaningful and should be an application or adaptation of a classroom experience. Homework is at all times an extension of the teaching/learning experience. It should be considered the possession of the student and should be collected, evaluated and returned to the students. <b>See Board Policy IHB.</b>
<b>MAKE-UP WORK DUE TO ABSENCES</b>	When a student is absent because of a legal reason as defined by Georgia law or when the absence is apparently beyond the control of the student, the student shall be given an opportunity to earn grade(s) for those days absent. Make-up work must be completed within the designated time allotted. <b>See Board Policy IHEA.</b>

SCHOOL EXPECTATIONS FOR SUCCESS	
<b>CLASSROOM EXPECTATIONS</b>	<ol style="list-style-type: none"> <li>Class begins at the bell. Students should be sitting quietly in their seats, and prepared to begin before the bell rings. Notebooks and colored pencils should be brought to class at all times unless otherwise directed. Any student not in their seat when the bell rings is tardy and will be handled accordingly.</li> <li>Students are expected to complete all textbook readings that correspond to lecture prior to class. It is the responsibility of the student to ask questions when they do not understand, to do extra research if necessary to understand general biology concepts (as satisfactory understand of said concepts are a prerequisite for this course) and to keep up with all assignments.</li> <li>Any assignments due in class should be turned in to the appropriate spot <b>before the bell rings</b>. Any assignments not turned in at the start of class will be considered late. Late assignments are assessed a <b>20% penalty for each day</b> they are late. Students are encouraged to email electronic assignments to Dr. Parrott, <b>a day before due date</b>, in order to minimize technical difficulties.</li> <li>Students are expected to maintain a notebook with neat, chronological notes, all handouts, lab reports and assignments. Class notes should be formatted as instructed by Dr. Parrott, and will be spot-checked periodically.</li> <li>If a student is absent from class, it is the student's responsibility to find out what assignments they have missed or have been collected. They can ask a peer, or consult the AP Biology website <a href="http://lakesidehs.dekalb.k12.ga.us/APBiology.aspx">http://lakesidehs.dekalb.k12.ga.us/APBiology.aspx</a> Any assignments due on the date of an absence, are due upon return to school. If the student is present at school, but not in class the day an assignment is due, it is still their responsibility to submit it to Dr. Parrott on that day. Due to the intense preparation involved, students that have not completed any missed labs, within three days of the lab will receive a zero for that lab.</li> </ol>

	<p>6. Make up work <b>will not be permitted</b>, as students should be handing in assignments when assigned. Late work for a unit will only be accepted for 5 days following its due date and for a late grade, or until the test for that chapter—whichever occurs first.</p> <p>Academic Honesty Honor Guidelines (assignments that do not meet the following requirements will earn 0% for all parties involved, and students will forfeit extra-credit opportunities for the remainder of the semester. Allowing a student to copy your work is as dishonest as copying the work of others):</p> <ul style="list-style-type: none"> <li>• All work is to be your own, and not a copy--in part or in whole-- of the work of others and is due completed at the time requested.</li> <li>• Any and all reports, projects, etc. must be your original work. The research of others may, and should be, included in your work, but it is expected to be properly cited. Give credit, where credit is due.</li> <li>• A test, or quiz is an evaluation of your comprehension alone. There should be no talking, texting, or any form of communication during a test, quiz, or any type of exam. Electronic devices should not be visible at all during tests or quizzes.</li> <li>• Students should not be in possession of another student's work <b>at any time</b>. If a student is found with the assignments of another student, the documents will be collected, both students will receive a zero for the assignment.</li> </ul> <p>Examples of academic dishonesty include, but are not limited to:</p> <p>1) Plagiarism, or the copying of another person's work without due credit.</p> <ul style="list-style-type: none"> <li>• copying someone's or allowing someone to copy your quiz, test, homework, class work, or lab (etc.) in part or in full</li> <li>• copying work from the internet, or other resource and claiming it as your own.</li> <li>• improper citation of references, to claim work as your own.</li> </ul> <p>2) Cheating on tests or quizzes includes (but is not limited to):</p> <ul style="list-style-type: none"> <li>• looking at another students' work for answers.</li> <li>• having answers written on anything (including desks) or stored electronically during a test or quiz.</li> <li>• trading test forms with other students prior to/while taking a test.</li> <li>• unauthorized access and distribution of test/quiz items prior to, during or after test.</li> <li>• talking, texting, or any form of communication during a test, quiz, or any type of assessment.</li> </ul>
<b>MATERIALS AND SUPPLIES</b>	<p><b>AP Biology Notebook</b> Colored Pencils <b>needed at ALL times</b> for assignments Agenda book (<b>needed at ALL times</b>)</p>
<b>EXTRA HELP</b>	<p><b>Tutorial Days:</b> Mon Tu, W, Th <b>Tutorial Hours:</b> 7:30-8am or by appointment <b>Tutorial Location:</b> Rm 1303</p>
<b>PARENTS AS PARTNERS</b>	<p>Please check the AP Bio website and Infinite Campus to make sure your student is staying on track. I may be contacted at <a href="mailto:Annette.M.Parrott@dekalbschoolsga.org">Annette M. Parrott@dekalbschoolsga.org</a></p>

# AP Biology Concepts at a Glance

## Big Idea 1: The process of evolution drives the diversity and unity of life.

<b>Enduring understanding 1.A:</b> Change in the genetic makeup of a population over time is evolution.	<b>Essential knowledge 1.A.1:</b> Natural selection is a major mechanism of evolution.
	<b>Essential knowledge 1.A.2:</b> Natural selection acts on phenotypic variations in populations.
	<b>Essential knowledge 1.A.3:</b> Evolutionary change is also driven by random processes.
	<b>Essential knowledge 1.A.4:</b> Biological evolution is supported by scientific evidence from many disciplines, including mathematics.
<b>Enduring understanding 1.B:</b> Organisms are linked by lines of descent from common ancestry.	<b>Essential knowledge 1.B.1:</b> Organisms share many conserved core processes and features that evolved and are widely distributed among organisms today.
	<b>Essential knowledge 1.B.2:</b> Phylogenetic trees and cladograms are graphical representations (models) of evolutionary history that can be tested.
<b>Enduring understanding 1.C:</b> Life continues to evolve within a changing environment.	<b>Essential knowledge 1.C.1:</b> Speciation and extinction have occurred throughout the Earth's history.
	<b>Essential knowledge 1.C.2:</b> Speciation may occur when two populations become reproductively isolated from each other.
	<b>Essential knowledge 1.C.3:</b> Populations of organisms continue to evolve.
<b>Enduring understanding 1.D:</b> The origin of living systems is explained by natural processes.	<b>Essential knowledge 1.D.1:</b> There are several hypotheses about the natural origin of life on Earth, each with supporting scientific evidence.
	<b>Essential knowledge 1.D.2:</b> Scientific evidence from many different disciplines supports models of the origin of life.

**Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.**

<p><b>Enduring understanding 2.A:</b> Growth, reproduction and maintenance of the organization of living systems require free energy and matter.</p>	<p><b>Essential knowledge 2.A.1:</b> All living systems require constant input of free energy.</p>
	<p><b>Essential knowledge 2.A.2:</b> Organisms capture and store free energy for use in biological processes.</p>
	<p><b>Essential knowledge 2.A.3:</b> Organisms must exchange matter with the environment to grow, reproduce and maintain organization.</p>
<p><b>Enduring understanding 2.B:</b> Growth, reproduction and dynamic homeostasis require that cells create and maintain internal environments that are different from their external environments.</p>	<p><b>Essential knowledge 2.B.1:</b> Cell membranes are selectively permeable due to their structure.</p>
	<p><b>Essential knowledge 2.B.2:</b> Growth and dynamic homeostasis are maintained by the constant movement of molecules across membranes.</p>
	<p><b>Essential knowledge 2.B.3:</b> Eukaryotic cells maintain internal membranes that partition the cell into specialized regions.</p>
<p><b>Enduring understanding 2.C:</b> Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.</p>	<p><b>Essential knowledge 2.C.1:</b> Organisms use feedback mechanisms to maintain their internal environments and respond to external environmental changes.</p>
	<p><b>Essential knowledge 2.C.2:</b> Organisms respond to changes in their external environments.</p>
<p><b>Enduring understanding 2.D:</b> Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment.</p>	<p><b>Essential knowledge 2.D.1:</b> All biological systems from cells and organisms to populations, communities and ecosystems are affected by complex biotic and abiotic interactions involving exchange of matter and free energy.</p>
	<p><b>Essential knowledge 2.D.2:</b> Homeostatic mechanisms reflect both common ancestry and divergence due to adaptation in different environments.</p>
	<p><b>Essential knowledge 2.D.3:</b> Biological systems are affected by disruptions to their dynamic homeostasis.</p>
	<p><b>Essential knowledge 2.D.4:</b> Plants and animals have a variety of chemical defenses against infections that affect dynamic homeostasis.</p>
<p><b>Enduring understanding 2.E:</b> Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.</p>	<p><b>Essential knowledge 2.E.1:</b> Timing and coordination of specific events are necessary for the normal development of an organism, and these events are regulated by a variety of mechanisms.</p>
	<p><b>Essential knowledge 2.E.2:</b> Timing and coordination of physiological events are regulated by multiple mechanisms.</p>
	<p><b>Essential knowledge 2.E.3:</b> Timing and coordination of behavior are regulated by various mechanisms and are important in natural selection.</p>

**Big Idea 3: Living systems store, retrieve, transmit and respond to information essential to life processes.**

<p><b>Enduring understanding 3.A:</b> Heritable information provides for continuity of life.</p>	<p><b>Essential knowledge 3.A.1:</b> DNA, and in some cases RNA, is the primary source of heritable information.</p>
	<p><b>Essential knowledge 3.A.2:</b> In eukaryotes, heritable information is passed to the next generation via processes that include the cell cycle and mitosis or meiosis plus fertilization.</p>
	<p><b>Essential knowledge 3.A.3:</b> The chromosomal basis of inheritance provides an understanding of the pattern of passage (transmission) of genes from parent to offspring.</p>
	<p><b>Essential knowledge 3.A.4:</b> The inheritance pattern of many traits cannot be explained by simple Mendelian genetics.</p>
<p><b>Enduring understanding 3.B:</b> Expression of genetic information involves cellular and molecular mechanisms.</p>	<p><b>Essential knowledge 3.B.1:</b> Gene regulation results in differential gene expression, leading to cell specialization.</p>
	<p><b>Essential knowledge 3.B.2:</b> A variety of intercellular and intracellular signal transmissions mediate gene expression.</p>
<p><b>Enduring understanding 3.C:</b> The processing of genetic information is imperfect and is a source of genetic variation.</p>	<p><b>Essential knowledge 3.C.1:</b> Changes in genotype can result in changes in phenotype.</p>
	<p><b>Essential knowledge 3.C.2:</b> Biological systems have multiple processes that increase genetic variation.</p>
	<p><b>Essential knowledge 3.C.3:</b> Viral replication results in genetic variation, and viral infection can introduce genetic variation into the hosts.</p>
<p><b>Enduring understanding 3.D:</b> Cells communicate by generating, transmitting and receiving chemical signals.</p>	<p><b>Essential knowledge 3.D.1:</b> Cell communication processes share common features that reflect a shared evolutionary history.</p>
	<p><b>Essential knowledge 3.D.2:</b> Cells communicate with each other through direct contact with other cells or from a distance via chemical signaling.</p>
	<p><b>Essential knowledge 3.D.3:</b> Signal transduction pathways link signal reception with cellular response.</p>
	<p><b>Essential knowledge 3.D.4:</b> Changes in signal transduction pathways can alter cellular response.</p>
<p><b>Enduring understanding 3.E:</b> Transmission of information results in changes within and between biological systems.</p>	<p><b>Essential knowledge 3.E.1:</b> Individuals can act on information and communicate it to others.</p>
	<p><b>Essential knowledge 3.E.2:</b> Animals have nervous systems that detect external and internal signals, transmit and integrate information, and produce responses.</p>

**Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.**

<p><b>Enduring understanding 4.A:</b> Interactions within biological systems lead to complex properties.</p>	<p><b>Essential knowledge 4.A.1:</b> The subcomponents of biological molecules and their sequence determine the properties of that molecule.</p>
	<p><b>Essential knowledge 4.A.2:</b> The structure and function of subcellular components, and their interactions, provide essential cellular processes.</p>
	<p><b>Essential knowledge 4.A.3:</b> Interactions between external stimuli and regulated gene expression result in specialization of cells, tissues and organs.</p>
	<p><b>Essential knowledge 4.A.4:</b> Organisms exhibit complex properties due to interactions between their constituent parts.</p>
	<p><b>Essential knowledge 4.A.5:</b> Communities are composed of populations of organisms that interact in complex ways.</p>
	<p><b>Essential knowledge 4.A.6:</b> Interactions among living systems and with their environment result in the movement of matter and energy.</p>
<p><b>Enduring understanding 4.B:</b> Competition and cooperation are important aspects of biological systems.</p>	<p><b>Essential knowledge 4.B.1:</b> Interactions between molecules affect their structure and function.</p>
	<p><b>Essential knowledge 4.B.2:</b> Cooperative interactions within organisms promote efficiency in the use of energy and matter.</p>
	<p><b>Essential knowledge 4.B.3:</b> Interactions between and within populations influence patterns of species distribution and abundance.</p>
	<p><b>Essential knowledge 4.B.4:</b> Distribution of local and global ecosystems changes over time.</p>
<p><b>Enduring understanding 4.C:</b> Naturally occurring diversity among and between components within biological systems affects interactions with the environment.</p>	<p><b>Essential knowledge 4.C.1:</b> Variation in molecular units provides cells with a wider range of functions.</p>
	<p><b>Essential knowledge 4.C.2:</b> Environmental factors influence the expression of the genotype in an organism.</p>
	<p><b>Essential knowledge 4.C.3:</b> The level of variation in a population affects population dynamics.</p>
	<p><b>Essential knowledge 4.C.4:</b> The diversity of species within an ecosystem may influence the stability of the ecosystem.</p>

**PLEASE SIGN BELOW AND RETURN**

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I have read the syllabus for Dr. Parrott's Advanced Placement Biology Class.

Student Name \_\_\_\_\_ Student Signature \_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_

Date \_\_\_\_\_

Additional information to support continued contact: Please write **Legibly**

<b>Information</b>	<b>Parent/Guardian</b>
<b>Day Time Phone Number</b>	
<b>Cellular Phone Number</b>	
<b>Home Phone Number</b>	
<b>Email Address</b> <b>Please write legibly</b>	