

# AP BIOLOGY: COURSE DIRECTIVES

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**TEXTBOOK:** *Campbell Biology, 10<sup>th</sup> Edition*



**COURSE WEBSITE:** <http://apbiology.mrmohn.com/>

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Notes		
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## COURSE DESCRIPTION:

Biology is the study of life. This field of study should not be new to you, for you have been studying life ever since your brain began processing information. Think back on everything you have ever known or observed. Your memories undoubtedly include a jumbled array of life forms: insects, flowers, furry creatures, trees, and humans to name a few. By observing and asking questions about the world around you, you have built up a store of knowledge about the living world. This course is an opportunity for you to extend your thoughts about life to more organized levels of understanding.

**Advanced Placement Biology is equivalent to a semester of college biology.** Students have the opportunity of obtaining college credit by scoring a 3 or above on the AP Biology Exam or by taking the class for credit from Baker University. You should check with the college or university you hope to attend for their policies related to Baker University transfer credit and/or AP Biology Exam credit. Policies vary from school to school and are subject to change over time.

**Although it is not mandatory,** Mr. Mohn highly encourages all students in AP Biology to prepare for and take the AP Biology exam. This class will be taught as such. There is a special dynamic when everyone is working towards the same goal. **If you are not looking for an academic challenge at the highest level, you should consider taking a different course.**

## THE FOUR BIG IDEAS OF AP BIOLOGY:

The key concepts and related content that define the revised AP Biology course and exam are organized around a few underlying principles called the big ideas, which encompass the core scientific principles, theories and processes governing living organisms and biological systems.

**BIG IDEA 1:** The process of evolution drives the diversity and unity of life. Evolution occupies a central position in the discipline of biology.

**BIG IDEA 2:** Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis. Different organisms employ various strategies to capture, use, and store free energy and exchange matter with the environment.

**BIG IDEA 3:** Living systems store, retrieve, transmit and respond to information essential to life processes. Genetic information provides for continuity of life, and this information is passed from parent to offspring. Random changes in information allow for evolution, with natural selection acting upon phenotypes.

**BIG IDEA 4:** Biological systems interact, and these systems and their interactions possess complex properties. All biological systems are composed of parts that interact with one another and the environment, and these interactions result in characteristics not found in the individual parts alone.

## GOALS:

### All AP Biology students will...

- understand the basic concepts and principles of modern Biology.
- develop the reading skills, vocabulary, critical thinking skills, and study habits essential for independent progress in science.
- develop a conceptual framework of modern Biology with an understanding of the overarching principle of evolution as the foundation for modern biological principles and models.
- utilize various scientific techniques and technological skills in the study of science.
- apply scientific principles in decision-making regarding your personal well-being, your future, and the future of society.
- understand the nature and limitations of scientific knowledge.

## STRATEGIES FOR ACHIEVING THESE GOALS:

1. This is a college-level course and the class will be handled as such, you will be graded primarily on exams and labs and you will be expected to monitor and analyze your own learning.
2. **Focus in class** - paying attention in class can save you hours of studying outside of class.
3. Biology is different from other introductory courses in terms of the amount of vocabulary involved to get a basic understanding of the science. **You must study some every day.** Waiting to study until just before the exam is a bad idea. Staying on top of the material will help you develop a deeper understanding and keep the material from seeming overwhelming and confusing.
4. **Regularly check the course website.** This resource has been specifically designed to help you be a successful AP Biology student and will be frequently updated with materials related to the course. The course website is your best friend in this class - check it frequently and use it to plan your studying.
5. **Make use of all other online resources,** especially the Campbell *Mastering Biology* website.
6. You will receive a detailed syllabus, including a list of learning targets, at the beginning of each instructional unit. At the beginning of the unit, check off those learning targets you have already mastered, then focus on the rest.
7. There are tutorial activities on the Campbell *Mastering Biology* website for each chapter of the textbook. These are highly useful. Be sure you make use of them bring any questions you have to class.
8. **You must be an advocate for your own learning.** Come in for help or get help from a classmate as soon as you have trouble with a concept. Consider forming a study group, even with just one other person.
9. Keep an organized notebook and organized notes.
10. After an online quiz or exam, take time to figure out why you missed questions. Think about whether you misread the question or simply needed to study more. **If you needed to study more, do it right away!** The concepts build on each other and there will be a comprehensive final exam at the end of both semesters.
11. Make sure you take labs seriously and that you understand what you are doing and why you are doing it. Labs are an important part of your preparation for the AP Biology Exam.
12. **Make up missed labs immediately.** Biology lab materials usually have a short shelf life. You cannot do a lab if the organisms are no longer fresh, no longer alive, or are no longer in the right stage of their life cycle.
13. Finally, remember that **you are always working toward the AP Biology exam on Monday May 11<sup>th</sup>, 2020.**

## CLASSROOM PROCEDURES:

1. **RULES:** The most important rule is to do what is right and treat each other with respect. Every class member is expected to display respect, responsibility, self-control, and effort.
2. **CLASSROOM BEHAVIOR:** Respect is the key to building a harmonious classroom environment. Everyone is expected to listen when someone else has the floor. Sending text messages, doing homework for another class, wearing headphones, and/or talking during instructional time is not acceptable. Any other student behaviors that negatively impact student learning will not be tolerated. Students who act in such a manner will be warned and/or temporarily removed from the learning environment.
3. **REQUIRED SUPPLIES:** You will need a **3-ring binder, loose-leaf paper, and safety goggles** for use in the laboratory. Goggles may be purchased from the school for \$5.00 or you may bring your own. For convenience, you will be asked to store your goggles in the classroom.
4. **FOOD/DRINK:** Food and drink are not allowed on lab days. Otherwise, you can consume food and/or drinks as long as you clean up your own spills and dispose of your trash in the trash bins.
5. **ATTENDANCE AND CLASS PARTICIPATION:** Because class sessions will introduce new material, allow time for questions, and include special laboratory materials and instructions, there is really no way to fully make up a missed class. It is essential that you make a conscientious effort to attend every class period.
6. **TARDIES:** If you are tardy, come in quietly, make sure Mr. Mohn knows you are present, and join the class. It is your responsibility to stop by after class to explain any extenuating circumstances.
7. **ACADEMIC DISHONESTY:** Cheating is understood by all to be unacceptable. All instances of cheating will be dealt with according to the Student/Parent Handbook. The type of cheating that occurs most often is plagiarism. This involves using another person's work or ideas without giving the proper credit. Written assignments with identical or very similar wording are nearly always the result of cheating. It is

acceptable to discuss answers on written assignments, but your answers must always be written in your own words. Just as it is handled at the university level, confirmed cases of academic dishonesty will result in no credit for the exam or assignment involved. All persons who knowingly participate in academically dishonest behavior are equally guilty and may be dealt with in the same manner.

8. **ELECTRONIC DEVICES:** Your MacBooks are to be used for academic purposes only. This means no games, personal email, social media, chat rooms, or instant messaging during instructional time. Other electronic devices (cell phones, smart watches, handheld games, etc.) are not to be used during instructional time. Your life does not consist in the abundance of your possessions (or obsessions).

*Simple rule: If you feel the need to hide it when Mr. Mohn walks by your desk, then don't do it.*

9. **INSTRUCTIONAL TIME:** Is Mr. Mohn addressing the entire class? Are students supposed to be working on a task related to learning in AP Biology? If the situation requires your focused attention on course-related material, then electronic devices are limited to educational use only.
10. **LATE WORK:** All assignments will have set due dates indicated on the course website, on Canvas, and in the unit syllabus. Late work will be accepted for full credit up until the assignment grades are entered in Canvas and Mr. Mohn “unmutes” the assignment. After this, no late work will be accepted.
11. **MAKE-UP WORK:** You will have two days to complete make-up work for every excused absence. It is your responsibility to check with your instructor or the course website as to what was missed. Remember, there is really no way to completely make up a missed class period. It is therefore essential you attend every class and lab and be prepared to fully participate. For exam security reasons, all make-up exams will differ from the original exam given in class. Make-up exams will take place in the BVNW Testing Center on Tuesday afternoons and Thursday mornings or in Room 301 during HHT. Failure to attend a scheduled make-up exam could result in a zero on the exam.
12. **WRITTEN WORK:** All written work must be done neatly and thoroughly. In all written work, complete sentences should be used whenever ideas need to be conveyed.
1. **EXTRA CREDIT:** Other than the Saturday STEM Seminars, Mr. Mohn does not give extra credit assignments. However, you may redo any assignment or lab if you feel the original grade does not adequately reflect what you know. Paper-based assignments can be printed out from the course website and handed in with the word “REDO” written at the top. Online submission assignments can be redone in room 301 during HHT-A. Your new score will be used instead of the original one. Redone assignments must be completed by the end of the instructional unit during which they were assigned.
13. **ONE-ON-ONE HELP:** Mr. Mohn is available for help both before and after school. He can usually be found in the office next to room 301.

### **GRADING PROCEDURES:**

Student grades will be calculated on a cumulative basis, with the mid-quarter and quarter grades representing your “work in progress.”

Your semester grades will be calculated as follows:

90% for cumulative grade, 10% for final exam (Fall) and AP Biology practice exam (Spring)

All grading will be based on the district standard\* of 90%=A, 80%=B, 70%=C, 60%=D, < 60%=F. (\*rounded up)

Cumulative grades will be weighted using the following categories:

**ONLINE QUIZZES/UNIT EXAMS (50%):** Throughout each instructional unit, students will be required to complete out-of-class Online Quizzes consisting primarily of multiple-choice questions. At the end of each instructional unit, students will complete an in-class Unit Exam covering the readings, lectures, discussions, online activities, and lab exercises from that unit. The Unit Exams will consist of multiple-choice and free-response questions. The multiple-choice questions will be administered using the Canvas Lock-Down Browser.

**LABORATORY ACTIVITIES (25%):** Students will be required to complete online pre-lab activities for each of the AP Labs, thoroughly read the handouts and answer the questions that will accompany each laboratory activity, and write occasional lab reports.

**CLASS WORK (25%):** Students will be required to complete additional required material including guided reading questions, practice free response questions, in-class review activities, homework assignments, student blogging assignments, etc., as determined by the instructor.

## WHAT YOU CAN EXPECT:

### All students can expect to...

- have daily reading assignments with guided reading questions.
- have an online quiz about every other weekend.
- have approximately one practice AP Free Response Question each instructional unit.
- have approximately one AP Lab each instructional unit.
- have a Unit Exam at the end of each instructional unit.
- have a comprehensive final exam at the end of the Fall semester.
- have a comprehensive AP Biology Practice Exam towards the end of the Spring semester.
- always have homework in AP Biology. If nothing else, start reading ahead!

Your success in this class and on the AP Biology Exam will be dependent upon you being fully prepared for each class period. In class, we will be focused on doing labs and other learning activities which will clarify difficult concepts. We will not be spending much time lecturing on concepts you can easily learn on your own.

### COURSE PROJECTION: (subject to modification)

Fall Semester Topics	Readings	AP Labs
Unit 1: Chemistry of Life	1-5, & 8.4-8.5	Enzyme Activity (Big Idea 4)
Unit 2: Cell Structure and Function	6 & 7	Diffusion and Osmosis (Big Idea 2)
Unit 3: Cellular Energetics	8.1-8.3, 9, & 10	Cellular Respiration (Big Idea 2) Photosynthesis (Big Idea 2)
Unit 4: Cell Communication and Cell Cycle	11, 12, 20.3	Cell Division: Mitosis and Meiosis (Big Idea 3)

Spring Semester Topics	Readings	AP Labs
Unit 5: Heredity	13, 14, & 15	Genetics of Organisms: Fruit Flies (Big Idea 3)
Unit 6: Gene Expression and Regulation	16-18, & 20-21	Biotechnology (Big Idea 3)
Unit 7: Evolution	22-26	Hardy-Weinberg (Big Idea 1) Phylogenetic Analysis (Big Idea 1)
Unit 8: Ecology	51-56	Animal Behavior (Big Idea 4)