AP BIOLOGY COURSE SYLLABUS

Mr. Novak and Mr. McKenzie
Email: kendrick.novak@ahschools.us and peter.mckenzie@ahschools.us

Course Description

Advanced Placement (AP) Biology is designed to be the equivalent of a year-long freshman-level collegiate general biology course. The topics and course content follow the AP Biology curriculum framework as outlined by the College Board. Students are given the opportunity to take the AP Biology exam administered in May upon completion of the course. If you would like more information about AP Biology and the Advanced Placement program, please contact me or go to the College Board web site at www.collegeboard.com.

AP Biology students will not only learn fascinating general biology content, but they will also experience science as a process by:

- conducting their own inquiry laboratory experiments
- investigating advanced topics through current scientific and trade journal articles
- participating in ethical, social and environmental issue discussions

Students can expect challenging content, a rigorous pace, extensive lab work, a significant time-commitment to studying and reading outside of class, and many rewards for putting in all of the effort it takes to be successful in AP Biology. **To be successful, students must take responsibility for their own learning.**

Course Objectives and Goals: Students will…

1) Gain an appreciation for the biological sciences and connect the Big Ideas and unifying themes of biology.
2) Understand that science is a process and experience scientific inquiry by conducting experiments to characterize cause and effect relationships and processes.
3) Be able to think critically and make informed decisions about personal, ethical, environmental, and social issues regarding science and technology; and,
4) Gain academic maturity and confidence in their learning skills.

AP Biology at Blaine High School is an "open-door" course. This means that anyone can register for it. However, a year of Chemistry is very helpful for preparing students to be successful. In addition to science preparation, students in AP Biology should have a strong math background, including algebra and geometry. Students should also be self-motivated and willing to work hard for success.

Text and Print Resources:

- Adopted text:
  - Urry, L., Cain, M., Wasserman, S., Minorsky, P. and Reece, J. *AP Edition of Campbell Biology*. 11th ed. Pearson Education, Inc., 2018
- Class website

Curriculum Framework: The revised AP Biology course has shifted 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 as they develop the reasoning skills necessary to engage in the science practices used throughout their study of AP Biology. Students who take an AP Biology course designed using this curriculum framework as its foundation will also develop advanced inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. The result will be readiness for the study of advanced topics in subsequent college courses — a goal of every AP course.

The key concepts and related content that define the revised AP Biology course and exam are organized around the big ideas, listed below, which encompass the core scientific principles, theories and processes governing living organisms and biological systems. For each of the big ideas, enduring understandings, which incorporate the core concepts that students should retain from the learning experience, are also identified. Each enduring understanding is followed by statements of the *essential knowledge* necessary to support it. Unless otherwise specified, all of the details in the outline are required elements of the course and may be included on the AP Biology Exam.

- **Big Idea 1:** The process of evolution drives the diversity and unity of life.
- **Big Idea 2:** Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.

- **Big Idea 3:** Living systems store, retrieve, transmit and respond to information essential to life processes.
- **Big Idea 4:** Biological systems interact, and these systems and their interactions possess complex properties.

Course Evaluation

There are three weighted categories for assigned material and exams:

Homework/Assignments: 5%
Labs: 25%
Tests/Quizzes: 70%

Grading Scale:

A = 93-100%	A- = 90-92.9%	B+ = 87-89.9%	B = 83-86.9%
B- = 80-82.9%	C+ = 77-79.9%	C = 73-76.9%	C- = 70-72.9%
D+ = 67-69.9%	D = 63-66.9%	D- = 60-62.9%	F = Below 60%

Classroom Rules and Makeup Policy

Classroom Rules:

1. Be in the room at the bell.
2. No food or drink in the lab areas
3. Help keep the room clean.
4. Be respectful.

Materials Required:

1. Three-ring binder (1½ or 2" width; 10 section dividers recommended)
2. Spiral notebooks or loose-leaf paper.
3. No. 2 pencils and black or blue ball-point pens for exams

Cheating/plagiarism: Anyone caught cheating will automatically receive *no credit for the work*. Parents will be notified, and, if necessary, a referral is sent to the office. A second offense is grounds for *no credit for the course*. Cheating includes:

- submitting work that is not your own
- copying other student's work, online resources or answer keys
- programming information into your calculators
- using your mobile device during a test or quiz, and
- other actions deemed inappropriate or dishonest.

Laboratory Component

The laboratory component of AP Biology is essential to the course. It accounts for 25% of your course grade. A minimum of 25% of in-class time will be devoted to laboratory work. Students are expected to be able to solve biological problems by designing controlled experiments and using collected data to draw conclusions. For all lab work, students will maintain a three ring binder containing their labs and other assignments. A record of lab work shows the quality of the lab work you have done. You may need to show your notebook to the biology department at a college or university to obtain credit for the laboratory portion of the equivalent course.

Technology Policy

Technology use in the classroom is intended to enhance the learning environment for all students, and any use of technology that substantially degrades the learning environment, promotes dishonesty or illegal activities, are explicitly prohibited.

Cell phones: It is never appropriate to use cell phones in any capacity during class lectures, direct instruction or student presentations. Cell phone ringers should be set on silent and should not be visible with the start of the class period. Students using their cell phone during class lectures, direct instruction or student presentations with forfeit their right for help and must come in before and after school for help.

Any cell phone use or class disruption caused by a cell phone during a test or quiz will result in the student receiving a zero for that assessment (this includes before or after the assessment is turned in).

Students may not use video or picture capabilities of their device without the consent of the teacher and any third party involved in the recording.

Students may use cell phones for education purposes with the **teacher's direction.**

Late Work: Assignments need to be turned in **ON TIME** in order for you to be on track with your learning. To receive full credit, an assignment must be completed and handed in on the due date. Late assignments will be penalized points up to the test date. **After the unit test, late assignments will receive one point.**
See your instructor to come up with a make-up plan for extenuating circumstances.

Make-up Policy: To do your best in this class, you need to be here. *It is your responsibility to talk to me and check the website for missed work.* School attendance policies will be enforced. Please make arrangements ahead of time if you know you will be absent. Those planning to be absent for school excused activities (sports, clubs, extracurricular activities, field trips, etc.) must request their make-up work *prior* to their absence and complete assignments on time. For other *excused absences*, the student will be allowed to make up work under the following guidelines:

1. **Missed Assignments**:
    a. **Absent 1 – 4 days consecutively**: you will have the same number of days you were gone as extra days to make up any assignments assigned while absent (i.e., absent 3 days, 3 days extra time awarded)
    b. **Absent 4 days or more**: we will discuss an individual make-up plan together.
2. **Missed Quizzes/Tests**:
    a. **Absent on day of test: plan on taking the test the day you return from your absence.**
    b. **Absent one or several days before the test**: See instructor.
3. **Missed Labs**:
    a. Labs must be made up *outside of class* within one week of your absence(s).

AP Biology Binder

You need to provide a 3-ring binder to organize your materials and maintain it throughout the year organized by unit. I would recommend a 2" wide 3-ring binder and tabbed dividers. You may need a separate binder for second semester. For each unit in the binder the following should be included:

1. **Course Information** (calendar, syllabus, goals, and grade sheets)
2. **Unit handouts**
3. **Notes**
4. **Assignments** (POGILs, FRQs, etc.)
5. **Lab** (lab handouts)
6. **Other**

You are free to organize your binder how you would like as long as you can readily find and access your materials. These items will be VERY valuable for review for the AP Exam in May.

Study Tips for AP Biology

1. Read through the key concepts or learning objectives to identify important concepts.
2. Define important vocabulary before reading.
3. Read the assigned reading (text book or e-book online)
    a. Skim chapter headings and images first.
    b. Define vocabulary terms
    c. Take notes from text and highlight or add to lecture notes.
    d. Print blank artwork and label/take notes on the images.
    e. Complete questions at the end of each section in text
4. Complete online activities, pre-tests, interactive lessons, quizzes, and other assignments
5. Review chapter summary in text
6. Write out responses to the learning objectives.

7. Make a chapter or unit review page by condensing and re-writing your notes.
8. Before the Unit Test:
    a. Skim chapter and review images and diagrams.
    b. Study notes, objectives, vocabulary, & review pages. Re-read sections in text if needed.
    c. Review quizzes and free response questions.
9. **Study nightly and in groups and make sure to get plenty of rest the night before tests**.
10. Participate in class and be an active learner.

Units of Study

Unit (Chapters)	Topics	Labs & Activities
Unit 1 (Chp 1)	● 4 Big Ideas ● Intro biology	
Unit 2 (Chp 2-3)	● Biochemistry ● Macromolecules ● Enzymes	● Water phase lab ● Carbohydrate lab ● Protein lab ● Enzyme lab
Unit 3 (Chp 4-6)	● Cells	● Microscope use ● Cell structure
Unit 4 (Chp 7 & 11)	● Membranes & transport ● Cell signaling	● Membrane beet lab ● osmosis labs ● C. elegans or Daphnia lab
Unit 5 (Chp 8-10)	● Cellular Respiration ● Photosynthesis ● Energy	● Photosynthesis (student design) ● Cellular Respiration ● Carbon dioxide/oxygen production
Unit 6 (Chp 16-18)	● DNA ● Biotechnology	● DNA extraction ● pGlo ● GFP purification ● DNA fingerprinting
Unit 7 (Chp 12-13)	● Mitosis/meiosis	● Cell cycle
Unit 8 (Chp 14-15)	● Genetics ● Pedigrees	● ●
Unit 9 (Chp 22-25)	● Evolution ● Speciation ● Phylogeny	● Artificial Selection ● Population Genetics ● DNA BLAST
Unit 10 (Chp 24-28)	Ecology Populations Ecosystems Conservation Biology	Energy Dynamics Mark Recapture Population Growth
AP Exam	**MONDAY, MAY 14, 2017 @ 8:00 am**	

AP BIOLOGY

Syllabus Signature
By signing this form you agree that you have read through the syllabus and understand the school's attendance policy, behavior, and academic policies, along with Mr. Novak's class expectations as well.

Parent/Guardian: You agree to help your student follow these expectations. Feel free to contact me with questions/concerns.

Printed Name _____

Student signature _____ Date _____

Parent or guardians signature _____ Date _____