



AP[®] Biology: A Summary of Course Revisions

In collaboration with eminent college and university faculty members, master AP teachers, learning and assessment specialists, and the National Science Foundation, the AP Program has revised the AP Biology course and exam to better align it with expectations of what content and skills students need to master in to be prepared for credit and placement in college. The revised course supports 21st Century educators, who face the challenge of empowering students with science skills, habits of mind, and content mastery. The revised AP Biology is equivalent to a two-semester college introductory biology course and has been endorsed enthusiastically by higher education officials.

What's Changed?

Course revisions focus on three core areas, which include the [AP Biology Curriculum Framework](#), the lab investigations, and the exam, as follows.

The Curriculum Framework

The revised curriculum framework describes course changes in detail and includes helpful features designed to do the following:

- Delineate required content from optional content
- Provide illustrative examples to enhance students' understanding of required concepts
- Point out where concept and content overlap to connect essential concepts
- Organize the course content systematically.

The following discussion outlines in brief the organizing principles of the course content.

- 1. Big Ideas** These overarching ideas, or themes, provide the main organizing structure of the course. The big ideas are evolution; cellular processes; genetics and information transfer; and ecology.
- 2. Enduring Understandings** The four big ideas are comprised of enduring understandings, or core concepts.
- 3. Essential Knowledge** This term refers to the supportive content essential for understanding and connecting the big ideas and enduring understandings.

4. Learning Objectives The learning objectives describe what students should know and be able to do once they complete the course. They also provide the basis for the exam questions, which will measure students' mastery of specific learning objectives.

5. Science Practices Designed to coordinate content knowledge and investigative skills to accomplish a goal or student-directed learning activity, the science practices must be taught explicitly and students must learn to use them reflectively and critically. The articulation of Science Practices is intended to make “doing science” a centerpiece for the revised course. The [AP Biology Curriculum Framework](#) encourages teachers to keep science practices in mind when planning instruction. For more information on Science Practices, visit [Advances in AP](#).

Lab Investigations

The course emphasizes inquiry-based, student-directed labs. Teachers are expected to devote 25 percent of instructional time to lab investigations, or two investigations per Big Idea. In conducting lab investigations, students will be encouraged to take the following steps:

- Generate questions for investigation
- Choose which variables to investigate
- Design and conduct experiments
- Design their own experimental procedures
- Collect data
- Determine how to present their conclusions.

Teachers may adapt their existing labs for inquiry-based investigations or they may use AP labs. The AP Program will publish a new lab manual for teachers and students, *AP Biology Investigative Labs: An Inquiry-Based Approach*, in spring 2012. In addition, AP will offer face-to-face professional development on inquiry labs starting in summer of 2011. Schools will not need to make significant investments in new lab equipment to conduct inquiry-based lab investigations.

AP Biology Exam

Because the questions on the new exam are aligned with the curriculum framework and course learning objectives, teachers will know what content the AP Biology Exam will test. The new questions focus on student understandings of the big ideas, enduring understandings, essential knowledge, and how this knowledge can be applied through the Science Practices. The number of multiple-choice questions has been reduced by nearly half, and they will focus on application of scientific knowledge. The number of

open-ended questions that require students to construct a response is more than doubling, and new questions will require the integration of science and mathematics skills. Because of the emphasis on quantitative skills, calculators may be used during the exam. To view sample exam questions, download [AP Biology: An Overview of Course Revisions](#).

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