

## AP Biology/DCC Bio 105 & 106 2024-2025

**Instructor:** Mrs. Patty Glancey      **Extra Help:** Tuesdays 2:30-3:30  
Room 255      or by appointment before/after school  
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**RCK Code:** S688 Full Year (11-12) (1 credit) (rank weight 1.10)

Fall 2024 General Biology 1: Bio 105 CRN 6484/6485, 4694/4695

Spring2025 General Biology II: Bio 106 TBD

**Prerequisite:** Approval by Science teacher, Regents or Honors Biology, Regents or Honors Chemistry

**Recommendation:** Students are expected to have at least an 85% average in previous Honors science courses and at least a 90% average in previous Regents science courses.

### **Textbook/Lab Manual:**

A number of recently published textbooks are appropriate for college students enrolled in introductory courses for biology majors. Our textbook covers the suggested AP syllabus as well as being the required textbook for DCC Bio 105 & 106.

**The required text is Campbell Biology 12th edition by Urry, Cain, Wasserman, Minorsky & Orr (ISBN: 9780135188743), but the 11<sup>th</sup> edition of this textbook may also be used. The lab manual required is the General Biology Lab Manual by Condon.**

**The 2012 lab manual, AP Biology Investigative Labs: An Inquiry-Based Approach**, supports the recommendation by the National Science Foundation (NSF) that science teachers build into their curriculum opportunities for students to develop skills in communication, teamwork, critical thinking, and commitment to lifelong learning. Teachers are expected to devote 25 percent of instructional time to lab investigations and conduct at least two investigations per Big Idea.

### **Web Resources:**

<https://apstudent.collegeboard.org/apcourse/ap-biology/>  
<https://openstax.org/books/biology-ap-courses/pages/1-introduction>

**\*\*\*We will be using Google Classroom as our learning management system. Please think of Google Classroom as your “digital binder”, which will have all resources for this course.\*\***

### **Tuition:**

DCC is charging a low credit fee of \$69/credit which means that our DCC Bio 105 class for the fall will be \$276 and then there will be another payment of \$276 for the Spring Bio 106 class. There is a reduced rate for students who receive Free and Reduced Priced Lunch. Registration ends on October 4th. Students must pay their tuition in full or set up a payment plan by November 11th to avoid being dropped from the college course. If students have not paid or set up a payment plan by this date, they risk not being able to earn college credit. Upon registration, students should click the "Finish and Pay Now," button to be directly routed to the payment webpage. Please follow the instructions in Google Classroom for registration.

### **AP Biology Course Description:**

**The Biology Exam is on May 5th at 8am. The cost for the exam is \$98.00**

The AP Biology course has been designed to provide students with a solid background in modern biology and help the students gain an appreciation of the scientific process. As a student taking AP Biology, your main goal should be one of developing a firm understanding of the concepts presented to you in the text, lecture and lab – rather than simply memorizing facts. This class will teach you how to think critically and understand complex processes.

This course involves an incredible commitment! **WE** will be moving at a rather rapid pace in order to cover all of the materials needed for the AP exam. **YOU** must complete **ALL** assignments **ON TIME** and **NOT** get behind on your readings. **All** students taking this class are expected to take the AP Biology exam. There will be a **comprehensive DCC final exam for each semester course**. As your instructor, I will not teach you all there is to know about biology. Rather, I will structure an environment where you can learn the material and be successful.

The AP Biology course is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year. After showing themselves to be qualified on the AP Examination, some students, as college freshman, are permitted to undertake upper-level courses in biology or to register for courses for which biology is a prerequisite. Other students may have fulfilled a basic requirement for a laboratory-science course and will be able to undertake other courses to pursue their majors.

The college course in biology differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required of students. The textbooks used for AP Biology should be those also used by college biology majors. The kinds of labs done by AP students must be the equivalent of those done by college students.

The AP Biology course is designed to be taken by students after the successful completion of a first course in high school biology and one in high school chemistry as well. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology.

(Information in this packet can also be found in the College Board Advanced Placement Course Description Guide.)

**DCC Bio 105 Course Description:**

An interdisciplinary study of basic biological concepts, including the nature of science, matter, the cell, characteristics of living matter, a brief survey of the living world, and ecology. BIO 105 and BIO 106 are recommended for students who wish to pursue studies in the Biological and Life Sciences. This course assumes a high school level of chemistry knowledge.

**DCC Bio 106 Course Description:**

A continuation of BIO 105, including homeostasis in organisms, genetics, evolution and a consideration of the structure and function of tissues, organs and organ systems.

Prerequisite(s) (must be completed prior to this class): BIO 105 with a grade C or better

(An official transcript may be obtained directly from Dutchess Community College for future use.)

**DCC Institutional Student Learning Outcomes (ISLOs) for Bio 105.**

**ISLO #3:** Scientific Reasoning: Students will apply the scientific method, develop hypotheses, analyze and draw conclusions.

**ISLO #4:** Quantitative Reasoning: Students will work with graphical, numerical or symbolic models to solve problems and interpret results.

**ISLO #6:** Critical Analysis and Reasoning: Students will formulate or evaluate arguments, problems or opinions and arrive at a solution, position or hypothesis based on carefully considered evidence.

**Course Student Learning Outcomes for Bio 105:**

1. Students will define the methods scientists use to explore natural phenomena, including observation, hypotheses development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis.
2. Students will apply scientific data, concepts, and models in one of the natural sciences.

3. Students will recognize the hierarchy of biological organization beginning at the atomic level and extending to the biosphere.
4. Students will discuss energy flow through biological systems.
5. Students will critically analyze the nature and diversity of designs displayed by biological entities, including organelles, cells, tissues, and organisms

### **DCC Institutional Student Learning Outcomes (ISLOs) for Bio 106.**

**ISLO # 3.** Scientific Reasoning: Students will apply the scientific method, develop hypotheses, analyze results and draw conclusions.

**ISLO # 6.** Critical Analysis and Reasoning: Students will formulate or evaluate arguments, problems or opinions and arrive at a solution, position or hypothesis based on carefully considered evidence

### **Course Student Learning Outcomes for Bio 106:**

1. Students will define the methods scientists use to explore natural phenomena, including observation, hypotheses development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis. (Linked to ISLO #3)
2. Students will solve and analyze a variety of problems within the discipline of genetics, including transmission and molecular genetics. (Linked to ISLO #6)
3. Students will determine similarities and differences in the anatomic structure and physiology of a variety of organ systems of members of the animal kingdom. (Linked to ISLO #6)
4. Students will use laboratory equipment to perform experiments and generate data for analysis.
5. Students will critically analyze data obtained from laboratory experiments in genetics and anatomy and physiology. (Linked to ISLO #3 and #6)
6. Students will utilize software applications appropriate for the analysis of laboratory experiments.

### **Student Responsibilities:**

- It is recommended that an hour a night is spent on biology studying.
- A written outline will be due before or on the day of the exam for that particular chapter. *Outlines will count as an assignment grade. Your average assignment grade will make up 10% of your quarterly grade.*
- Students will complete a written lab report for most laboratory exercises. This will usually be due one week following the completion of the lab and **MUST** be typed. *Your average lab grade will make up 30% of your quarterly grade.*
- Quizzes will be announced or unannounced. Unit exams will always be announced. *Your average unit exam grade will make up 60% of your quarterly grade.*
- Be on time to class. Be attentive and actively participate.
- Practice safe laboratory procedures, including no food or inappropriate cell phone use.
- Be tolerant and courteous of others.

- Be an advocate of your own education! Ask lots of questions and seek help when needed.
- Do your best and have fun!

**Grading System:**

<b>Exams</b>	<b>60%</b>
<b>Labs</b>	<b>30%</b>
<b>Assignments</b>	<b>10%</b>

- Points will be deducted for each day an assignment is late. ALL work must be turned in – NO EXCUSES!!
- There will be DCC assignments and tests after the AP exam in May.
- Your final RCK course grade will be an average of each quarterly grade.
- Your final DCC grade for each semester that you are enrolled will be an average of the 2 quarters.

**Materials:** (You know what works best for you, this is just a suggestion)

- Three ring binder with dividers just for biology w/ loose leaf.
- Pen and pencil
- Optional highlighter or multi-colored pens
- Pocket folder

**Content:**

Given the speed with which scientific discoveries and research continuously expand scientific knowledge, many educators are faced with the challenge of balancing breadth of content coverage with depth of understanding. 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. To foster this deeper level of learning, the breadth of content coverage in AP Biology is defined in a way that distinguishes content essential to support the enduring understandings from the many examples or applications that can overburden the course. 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 revised AP Biology course is equivalent to a two-semester college introductory biology course and has been endorsed enthusiastically by higher education officials.

The key concepts and related content that define the revised AP Biology course and exam are organized around four Big Ideas, which encompass the core scientific principles, theories and processes governing living organisms and biological systems.

**Big Idea 1: Evolution**

The process of evolution drives the diversity and unity of life.

**Big Idea 2: Energetics**

Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain dynamic homeostasis.

**Big Idea 3: Information Storage & Transmission**

Living systems store, retrieve, transmit, and respond to information essential to life processes.

**Big Idea 4: Systems Interactions**

Biological systems interact, and these systems and their interactions possess complex properties.

**Topics covered in this class include:**

**I. Molecules and Cells**

- A. Chemistry of Life
  - Water
  - Organic molecules in organisms
  - Free energy changes
  - Enzymes
- B. Cells
  - Prokaryotic and eukaryotic cells
  - Membranes
  - Subcellular organization
  - Cell cycle and its regulation
- C. Cellular Energetics
  - Coupled reactions
  - Fermentation and cellular respiration
  - Photosynthesis

**II. Heredity and Evolution**

- A. Heredity
  - Meiosis and gametogenesis
  - Eukaryotic chromosomes
  - Inheritance patterns
- B. Molecular Genetics
  - RNA and DNA structure and function
  - Gene regulation
  - Mutation

- Viral structure and replication
- Nucleic acid technology and applications
- C. Evolutionary Biology
  - Early evolution of life
  - Evidence for evolution
  - Mechanisms of evolution
- III. Organisms and Populations**
  - A. Diversity of Organisms
    - Evolutionary patterns
    - Survey of the diversity of life
    - Phylogenetic classification
    - Evolutionary relationships
  - B. Structure and Function of Plants and Animals
    - Reproduction, growth, and development
    - Structural, physiological, and behavioral adaptations
    - Response to the environment
  - C. Ecology
    - Population dynamics
    - Communities and ecosystems
    - Global issues

## **Additional Information from DCC**

### **Academic Integrity Policy**

Dutchess Community College is committed to the principles of honesty, integrity, and ethical behavior. It is expected that students will recognize these values and adhere to all aspects of student conduct and academic honesty inside and outside of the classroom.

Academic dishonesty in any form is regarded by the College as a breach of academic ethics and may result in disciplinary action.

Academic dishonesty includes, but is not limited to, the following:

- Cheating on examinations
- Plagiarism: the representation of another's ideas or writing as one's own.  
Examples include:
  - presenting all or part of another person's published work as something one has written;
  - paraphrasing or summarizing another's writing without proper acknowledgement (citation);
  - representing another's artistic or technical work or creation as one's own.
- Willingly collaborating with others in any of the above actions which result(s) in work being submitted which is not the student's own.

- Submitting work containing any content that was generated by an Artificial Intelligence bot or website when not explicitly directed to do so by the instructor.
- Stealing examinations, taking electronic images, falsifying academic records and other such offenses.
- Knowingly permitting another student to use one's work or cheat from one's examination.
- Submitting work previously presented in another course without permission of instructor.
- Unauthorized duplication of computer software.
- Unauthorized use of copyrighted or published material.

If, based on substantial evidence, an instructor deems that a student is responsible for a violation of the Academic Integrity Policy, the instructor may take the following actions:

- The instructor may require that the student repeat the assignment or examination, or
- The instructor may give the student a failing grade for the assignment or examination, or
- The instructor may give the student a failing grade for the course.

As an institution of higher education, it is incumbent on the College to ensure that students understand and uphold the highest standards of academic honesty and that there be accountability in cases where students repeatedly violate those principles. In order to build an intellectual culture of academic integrity and ensure that students learn appropriate behavior in their academic endeavors, faculty and staff who judge that a student intentionally violates the Academic Integrity Policy shall report said violation to the Office of Instruction & Learning.

Students' right to privacy will be upheld, and all students shall have the right to appeal any action that results from this process.

## **Additional Information from RCK**

### **WCSD Cheating Policy:**

The District recognizes all policies and procedures required by NYSED for instances of cheating on all New York State Assessments. For class assigned work or local assessments a grade of zero may be given to any student who gives or receives information, including electronically, on any form of a test, quiz, homework, assignment or lab.

### **WCSD Grading Policy:**



A zero grade will be given for work never submitted. Unless excused, students turning in their COMPLETED homework assignment on time will be able to receive full credit for their homework assignment. All late homework assignments submitted shall receive prorated partial credit. If a student is absent, the due date of the assignment will be based on the teacher's discretion.

**WCSD Use of Artificial Intelligence (AI) Policy:**

The use of AI for the sole purpose of fulfilling class assigned work or assessments is strictly prohibited. Any person found to be using AI to generate responses to class assignments or assessments, with the goal of increasing that grade shall take the penalty of cheating. A student may appeal the grade to the Principal and/or Building Administrator. In addition to the range of possible disciplines listed in the Disciplinary Measures table of this code of conduct, penalties for cheating will be at the discretion of the Building Administrator and the Classroom Teacher.

**WCSD Cell Phone Usage Policy:**

It is the policy of the Wappingers Central School District that students in grades 9-12 are allowed to carry smart devices during school hours and on school vehicles. However, during instructional times, students are prohibited from possessing smart devices on their person. Smart devices must be stored in a school bag or another location determined by the staff member in charge of that location. Any student who knowingly possesses a smart device on his/her person during an instructional period without permission, will be considered insubordinate and subject to the Student Code of Conduct. It is the policy of the Wappingers Central School District that the use of personal cell phones and other electronic devices is not permitted by students in grades 9-12 at any time in specific common areas; locker rooms, bathrooms, gym class, the auditorium, cafeteria, and classrooms (except for instructional purposes, and only at the discretion of the teacher), and hallways. Our High Schools will utilize lockable phone pouches as a deterrent for students who violate our cell phone expectations. Students who receive a referral for Cell Phone / Electronic Device Violation will, at the discretion of Building Administration, be required to store their device in a pouch for the duration of the school day. The device, locked in the school provided pouch will remain with the student for the day to ensure it is not lost or damaged by the school, and the student will be responsible for having the pouch unlocked prior to dismissal from school. For safety reasons the use of headphones or earbuds outside of classrooms or designated areas is strictly prohibited.