

Welcome to AP Biology 2020-2021

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School Number: 623-209-0017

Tutoring Hours: Monday and Wednesday

Classroom: Room 211

2:30pm to 3:30pm

Course Overview

AP Biology section SC655A, conforms to the standards instituted by the college board for all AP courses and covers all of the topics in the AP Biology Course Description. These topics include biochemistry, cell structure and function, metabolism, genetics, molecular basis of inheritance, DNA technology, evolution, microbiology, classification, plant and animal physiology, and ecology. The following are the four major big ideas this course will cover based on the AP Biology Curriculum Requirements.

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

Textbook

Starr, Taggart, Evers, Starr. *Biology: Diversity of Life 12th Ed.* 2010, Brooks/Cole.

Urry, L. A., Cain, M. L., Minorsky, P. V., & Reece, J. B. (2017). *Biology in Focus* (2nd Ed.). Pearson Higher Education

AP Biology Exam

The AP Biology Exam is on Friday May 14, 2021. The exam is 3 hours long and has two sections — multiple choice and free-response. You are allowed to use a **four-function calculator (with square root), scientific, or graphing calculator** throughout the exam.

Section I: Multiple choice | 60 questions | 1 hour and 30 minutes | 50% of Exam Score

- Individual questions
- Sets of questions with 4-5 questions per set.

Section II: Free-response | 6 Questions | 1 hour and 30 minutes (includes a 10-minute reading period) | 50% of Exam Score

- **Long Free-response** (2 questions, one of which is or data-based)
- **Short Free-response** (4 questions, each requiring a paragraph-length argument/response)

Required Student Materials

- Textbook (Leave this at home, we will have access to *Biology in Focus* on Google Classroom)
- Pen and Pencils, various colored highlighters
- Non-scientific calculator (four-functions)
- 8-tab binder dividers (write-on or insertable tabs) (Recommended, but not required)

- 3 inch three-ring binder for notes and handouts
- 2 composition notebooks (1 quad lined for labs and 1 regular)

Grading

Grades will be based on points earned from tests, quizzes, labs, and class assignments.

Letter grades will be earned according to the following percentages:

A	90% -100%
B	80% -89%
C	70% -79%
D	60% -69%
F	59% or lower

You may access our Online Academic Resource through out Student Grades Link on northpointprep.com.

D and F Grades

As soon as the student's grade falls below a C, per school policy, parent/guardian will be e-mailed no later than the end of the following school day. If the student's grade becomes an F, parent/guardian will be notified within the time frame set forth by the student handbook, and the student will be required to attend mandatory tutoring until the grade is brought up to at least a D. The student will be notified each day he/she is required to attend tutoring. Failing to attend mandatory tutoring will result in ISS or other disciplinary action seen fit by administration. It is the student's responsibility to communicate with the teacher if he/she has tutoring with another teacher. Failing to do so will be seen as failure to attend mandatory tutoring, thus following the same consequences mentioned earlier.

“Once enrolled, North Pointe does not accept course credit from other high schools or online institutions. The only remedy for making up a failing course credit is North Pointe Credit Recovery. All credit recovery must be approved by administration.”

Attendance Policy

An absence will only be considered excused when the parent/guardian contacts the school office, via phone, attendance line, and/or e-mail prior to 9am the day of the absence. If a parent/guardian does not call or e-mail by 9 am of the absence, an unexcused absence will occur and credit for assignments, tests, labs, and/or quizzes due that day will NOT be given. If a student is absent for more than 9 days per semester, the status of the class becomes an audit and their grades/credits may be withheld.

Homework and Readings

Homework will take many forms and is designed to help with students understanding of the current unit being studied. Not all assignments will be collected for a grade but rather used for the development of class discussion or other activities. Homework assignments for each unit include, but are not necessarily limited to the following: nightly reading and chapter outlines, completion of Major Themes Concept Maps, justify the answers to the “self-quiz” multiple-

choice section at the end of each assigned chapter, web activities, and answering free-response questions which are related to the unit.

Students will also be frequently asked to watch videos, podcasts, and other resources not eh current topic to build on assigned readings.

Reading the text, as assigned in class, is extremely important for success in this course. There is not enough time to discuss al information you are responsible for learning during class time, so it is expected that you will acquire much of this by careful and consistent reading of the textbook. Class time will be spent on more difficult concepts, specific questions you have as a result of text reading and class discussion, as well as lab work.

Tests and Quizzes:

Each week there may be a reading quiz or practice Free-response Question (FRQ). Unit exams will be modeled after the AP exam and including multiple-choice and free-response questions. Multiple-choice questions that were missed on the quizzes and exams may be re-written for half credit. In order to receive credit, the student must explain in detail why each letter (A, B, C, D, and E) is correct or incorrect. Quiz and test corrections are due one week following the return of the scores. Corrections will help students understand why they missed specific concepts and help improve test scores in the future.

Make-up Exams and Quizzes

Make-up exams will only be given if the student had an excused absence the day the exam was given. If the absence is unexcused, a zero (0) will be given for the test and the student CANNOT make the test up. If the absence is excused, then the student will take the make-up exam after school, during the tutoring hour, on the day he/she returns. Taking the exam during tutoring ensures the student will have a quiet place to focus on the exam, as well as he/she will not miss that day's instruction.

Lab Reports

This course is also structure around inquiry int eh lab and the use of the seven science practices throughout the course.

Science Practices (SP)

1. The student can use representation and models to communicate scientific phenomena and solve scientific problems.
2. The student can use mathematics appropriately.
3. The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
4. The student can plan and implement data collecting strategies appropriate to a particular scientific question.
5. The student can perform data analysis and evaluation of evidence.
6. The student can work with scientific explanations and theories.

7. The students is able to connect and relate knowledge across various scales, concepts, and representations in and across domains.

For each lab, students will be asked to complete pre-lab questions. If the pre-lab is not done prior to the lab, students will lose 10%. Students will be required to complete the pre-lab prior to starting the lab; failure to do so shortens the amount of time the student has to complete the lab. Should there not be enough time for the lab to be completed, due to having to complete the pre-lab, the students will be required to finish the lab on his/her own time (aka during tutoring). At the end of the lab, students will be required to answer post-lab questions, graph data collected, and analyze results.

Make-up Work

Make-up work will only receive credit if the student had an excused absence on the day it was due. The student will have two (2) days per excused absence, up to one (1) week, to complete the missing work. If the absence was unexcused, the student will receive a zero (0) for the assignment(s). The student may obtain the missed assignment(s) to help keep from falling behind, but the assignment(s) cannot be turned in for credit. It is the students responsibility to make up work missed during an absence.

Late Work

Late work will be accepted; however, it will be worth 50% of the original value starting the day after it was due. It will not be accepted after one (1) week from the due date. Keep in mind this course is designed to prepare students for college, most college class do not accept late work. Please make sure all assignments are turned in on time, and turning in late work is a once in a blue moon situation!

Any labs that are missed must be made up during tutoring the week of the lab.

Units of Instruction

UNIT 1 – Biochemistry/Chemistry of Life	Chapter(s)
1. Review of Basic Inorganic/Organic Chemistry	2
2. The Macromolecules: Carbohydrates, Lipids, Proteins	3
UNIT 2 – Cell Structure and Function	
1. Prokaryotes vs Eukaryotes / Plant vs. Animal	4
2. Basic Structure of Cells	4
3. Organelles, Cytoskeleton, Components of Mobility	4
4. Structure and Function of Cell Membranes	5
Unit 3 – Cell Energetics	
1. ATP, Energy Transfer, Chemiosmosis	6
2. Photosynthesis (C ₃ & C ₄ Pathways)	7
3. Cellular Respiration: Glycolysis, Aerobic Respiration, Anaerobic Respiration	8
Unit 4 – Cell Communication and Cell Cycle	
1. Cell Communication	5
2. Cell cycles, Mitosis	9
3. Regulation of Cell Cycle	9
UNIT 5 – Principles of Heredity	
2. Meiosis, Cancer	10
3. Gametogenesis	10
4. Mendel's Laws: Inheritance Patterns, Genes, Eukaryotic chromosomes, Interactions	11,12
Unit 6 – Gene Expression and Regulation	
1. DNA: Structure and Replication	13
2. RNA: Transcription, mRNA Editing, Translation	14
3. Gene Regulation	15
4. Mutations, Recombinant DNA Technology, Cloning Hybridization, Sequencing, PCR	16

UNIT 7 – Evolution and Natural Selection	
1. Origin of Life	20
2. Natural Selection, Population Genetics	17
3. Speciation, Patterns of Evolution	18, 19
4. Evolutionary Patterns	21
5. Principles of Taxonomy and Systematics	21
6. Classification: Eubacteria, Archaeobacteria, Protists, Fungi, Plantae, and Animalia	22-27
UNIT 8 – Biodiversity and Ecology	
1. Pollution Dynamics	45
2. Communities & Ecosystems	47, 48, 49
3. Human Impact	50

** The instructor receives the right to modify the syllabus and schedules as necessary to facilitate the objects of the course*