

Athens High School

Course Syllabus 2022-2023

Course Name: AP Calculus

Teacher: Mrs. Begley

Materials: Notebook, Graphing Calculator

Prerequisite: Precalculus

*Academic performance in prerequisite classes will be taken into account as well as faculty recommendation

Course Description and Objectives

This course is designed to be an intensive study of calculus for the college-bound student. Topics include limits, differential calculus, and integral calculus. The course prepares the student for the Advance Placement Calculus Exam and advanced college calculus courses. A Texas Instruments graphing calculator is strongly recommended.

Textbook Name: *Calculus of a Single Variable* Eighth Edition Copyright 2006.
Boston, MA: Larson, Hostetler, Edwards

Grading

Tests/Quizzes – Major 80%	100 points
Notebook – Major 80%	100 points
Homework – Minor 20%	6 points

Grading Scale: The scale in the handbooks, as adopted by the Athens City Schools Board of Education, will be used to determine letter grades

Classroom Rules/Policies

1. Show Respect
2. Be on time
3. Bring necessary materials
4. Do not use or have out cell phones

Keys to being successful

1. High Attendance Rate (just like college)
2. Ask Questions
3. Ask for extra help as needed (Academic Coaching, etc.)
4. Do Homework!!!

Absence (Per school handbook)

Students should make arrangements for make-up work the day they return to school. A "0" will be recorded if no arrangements are made. A student will have the same number of days to make up their work and/or tests as excused absence (example: 4 days absent- 4 days to make up work)

Review Days are a luxury. If you are not present in class during these days you are still required to take the test or quiz on the assigned date. You must get approval from me in advance to not take a test or quiz on the assigned day if you are present in class.

Testing

There is no extended time given on a test unless you have accommodations for testing that allows extended time. If you do have accommodations, I need to be made aware of those before the first test/quiz. Retakes will NOT be given for any test/quiz.

Multiple versions of a test/quiz can be given. Make-up tests/quizzes can be different than the original version given on the assigned date.

Approximate list of topics to be covered

<i>First Grading Period</i>	<i>Second Grading Period</i>
<ul style="list-style-type: none">▪ Graphs and Models▪ Linear Models and Rates of Change▪ Functions and Their Graphs▪ Fitting Models to Data▪ A Preview of Calculus▪ Finding Limits Graphically and Numerically▪ Evaluating Limits Analytically▪ Continuity and One-Sided Limits▪ Infinite Limits▪ The Derivative and the Tangent Line Problem▪ Basic Differentiation Rules and Rates of Change▪ Product and Quotient Rules and Higher-Order Derivatives▪ The Chain Rule▪ Implicit Differentiation▪ Related Rates▪ Extrema on an Interval	<ul style="list-style-type: none">▪ Rolle's Theorem and The Mean Value Theorem▪ Increasing and Decreasing Functions and the First Derivative Test▪ Concavity and the Second Derivative Test▪ Limits at Infinity▪ A Summary of Curve Sketching▪ Optimization Problems▪ Newton's Method▪ Differentials▪ Antiderivatives and Indefinite Integration▪ Area▪ Riemann Sums and Definite Integrals▪ The Fundamental Theorem of Calculus

<i>Third Grading Period</i>	<i>Fourth Grading Period</i>
<ul style="list-style-type: none"> ▪ Integration by Substitution ▪ Numerical Integration ▪ The Natural Logarithmic Function: Differentiation ▪ The Natural Logarithmic Function: Integration ▪ Inverse Functions ▪ Exponential Functions: Differentiation and Integration ▪ Bases Other Than e and Applications ▪ Inverse Trigonometric Functions: Differentiation ▪ Inverse Trigonometric Functions: Integration ▪ Hyperbolic Functions ▪ Slope Fields and Euler's Method ▪ Differential Equations: Growth and Decay ▪ Separation of Variables and the Logistic Equation ▪ First-Order Linear Differential Equations ▪ Area of a Region Between Two Curves ▪ Volume: The Disk Method ▪ Volume: The Shell Method ▪ Arc Length and Surfaces of Revolution 	<ul style="list-style-type: none"> ▪ Basic Integration Rules ▪ Integration by Parts ▪ Trigonometric Integrals ▪ Trigonometric Substitution ▪ Partial Fractions ▪ Integration by Tables and Other Integration Techniques ▪ Indeterminate Forms and L'Hopital's Rule ▪ Prepare form AP Exam