

# AP<sup>®</sup> Calculus AB (UMSL Math 1800) Syllabus

Collegiate School of Medicine and Bioscience<sup>1</sup>  
2024-2025

## Instructor

Nathan Klosterman

## Contact Information

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**Note:** All emails should go to Mr. Klosterman including notifications about absences, tardies, extensions, rescheduling assessments, etc.

## Instructional Material

Textbook: *Calculus: Graphical, Numerical, Algebraic AP\* Edition 6e* by Demana, Waits, Kennedy, Bressoud, and Boardman

Calculator (at school, but can be checked out): TI-84+ CE graphing calculator

## Other Materials

Binder (highly recommended), paper (college ruled and graph), folder, pencils and pens, a good eraser

**You will often refer to work we have done previously, so you should keep all notes and assignments. Make sure everything legible and ORGANIZED!**

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<sup>1</sup> Subject to revision based on changes in curriculum or school policy.

## Internet/Computer Access

You will need to rely on AP Classroom and other online resources for AP Calculus. If you have issues with internet and/or computer access, let me know immediately so we can figure out a solution.

## Very Important Websites

- <https://office.com>  
You can access all of your Microsoft Products here including Teams.
- <https://sis.slps.org/SLPS/>  
Check your grades here!
- <https://edulastic.com/>  
You will take any virtual or remote quizzes and unit exams here.
- <https://myap.collegeboard.org/>  
AP Videos and progress checks

## Useful Websites

Consider using these if you miss a day of class and/or if you need extra help!

- <http://www.Khanacademy.org>  
Videos for a variety of topics.
- <http://www.chaoticgolf.com/tutorials.html>  
Precalculus & Calculus Tutorials
- <http://www.calculus-help.com/tutorials/>  
Tutorials, Problems of the Week, Cheat Sheet & Songs
- <http://tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx>  
Paul's Online Math Notes
- <https://www.desmos.com/calculator> & <http://www.mathsisfun.com/data/function-grapher.php>  
Online graphing calculators
- [http://www.jamesrahn.com/pages/pre-calculus/table\\_of\\_contents.htm](http://www.jamesrahn.com/pages/pre-calculus/table_of_contents.htm)  
Pre-Calculus review by topic

## General Expectations

AP Calculus is a very difficult course that requires a lot of work. If you work hard in and out of class and do everything that is expected, you should pass the course and be in a good position to go into college calculus courses. However, earning an A and/or scoring well on the AP Exam requires particular dedication. I say this not to scare you out of the class, but to let you know that this content is difficult, and the expectations are very high. At the end of the day, AP Calculus is an extremely rewarding endeavor that trains you well for mathematics in college whether you retake calculus or proceed to the next level.

Unfortunately, there is a lot of content to cover in the class, so the pace will be quick and there is less wiggle room than in other math courses. This means it is especially important to ask questions when you have them and to advocate for yourself when you need help so that you do not fall behind. **You can ask questions in class when appropriate, during mentor time, and via email or Teams.** I encourage you to communicate with me outside of class if you have any questions. I may be able to quickly clear up a question or schedule a one-on-one meeting with you if it requires more discussion. I am more than willing to put in extra time if it helps you.

## UMSL Math 1800 Course Description and Registration Information

This course provides an introduction to differential and integral calculus. Topics include limits, derivatives, related rates, Newton's method, the Mean-Value Theorem, Max-Min problems, the integral, the Fundamental Theorem of Integral Calculus, areas, volumes, and average values. Registration information can be found at <http://www.umsl.edu/acp>.

### What the student will learn in the course:

- Understand the theory of limits, continuity, differentiation
- Become proficient in using the techniques of differentiation
- Obtain the ability to apply differentiation to solve related rates and optimization problems
- Understand the concept of a Riemann integral and the use of the Fundamental Theorem of Calculus to calculate Riemann integrals
- Use of the method of Riemann sums to find areas, volumes and other geometric and physical quantities
- Develop a proper writing style for solutions of mathematical problems

## Course Overview

### Unit 1: Limits and Continuity

In this unit, students develop an understanding of limits as the foundational building block for both derivatives and integration. One goal of this unit is to ensure that students are comfortable solving limit problems using the Rule of Four. The Rule of Four is a method where students can solve problems using:

1. A graphical approach
2. A numerical/tabular approach
3. An algebraic approach
4. A verbal or written approach, communicating effectively what their final answer means in the context of the problem

### Unit 2: Differentiation: Definition and Fundamental Properties

In these units, students use their understanding of limits to explore the meaning of a derivative and instantaneous rate of change. Building on the limit definition of the derivative, students will explore and begin to use the basic rules for taking a derivative. One goal of this unit is for students to use the Rule of Four to solve for derivatives of many different types of functions.

### Unit 3: Differentiation: Composite, Implicit, and Inverse Functions

In this unit, students expand on their understanding of derivatives by learning more advanced algebraic techniques for solving complex derivatives including composite functions. Students explore how to take derivatives of equations that are not mathematical functions using implicit differentiation. They will be able to identify the correct procedure to use when approaching any type of derivative.

### Unit 4: Interpreting the Meaning of the Derivative in Context

In this unit, students then expand on their understanding the meaning of derivatives and their use in real-world problems including, but not limited to, straight-line motions. One goal of this unit is for students to take derivatives of an expression with relation to any variable, typically time with related rates problems. Other applications of derivatives including linearization and L'Hopital's Rule will also be included in this unit.

### **Unit 5: Analytical Applications of Differentiation**

In this unit, students discover how we can use the first and second derivatives of functions to describe the function's behavior and sketch it accurately. One goal of this unit is for students to understand how to apply the Existence Theorems (which include the Intermediate Value Theorem, Extreme Value Theorem, Rolle's Theorem, and the Mean Value Theorem) to help problem solve and justify their conclusions. They will also learn how to use calculus to solve optimization problems.

### **Unit 6: Integration and Accumulation of Change**

In this unit, students discover the relationship between differentiation and integration as inverse operations. Students learn how to integrate functions and then, using the definite integral, learn how to "accumulate" in various real-world settings. As the unit progresses they learn the importance of the Fundamental Theorem of Calculus and its many applications.

### **Unit 7: Differential Equations**

In this unit, students discover how to "read" a slope field and see how a function (or other equations that are not mathematical functions) behave. Slope fields are the graphical interpretation of a differential equation (DE) and tie in nicely to the Rule of Four. Students will also build upon their knowledge of integration, using separation of variables to solve more complicated differential equations.

### **Unit 8: Applications of Integration**

In this unit, students discover the real power and beauty of calculus in a variety of integration problems. Building upon their knowledge of accumulation (and specifically area under a curve), students will be able to find the area between two curves given two functions. Students also learn to find volume of a solid where a function (or two functions) is rotated around a horizontal line or vertical line. Using a variety of geometric shapes, students will also be able to find the volume of a 3-D solid using known cross-sectional areas.

### **Unit 9: AP Test Review**

Once students have learned all the material, we will review for the AP Exam (**given on Monday, May 12 at 8:00 a.m.**). This review will include a practice exam to be used as the final exam for the course.

**Course Timeline/Pacing:** (for 80-minute classes that alternate meeting 2 and 3 times a week)

The following is a more detailed outline of the topics we cover and a typical sequence in which those topics are covered. The time spent is only an estimate of the average number of days allotted to the topic because the actual time varies from year to year depending upon the richness of class discussions as well as amount of instructional time in the school schedule. **However, we will remain VERY close to this schedule.**

**Note that each unit exam will occur on the last day of the unit. There will be no dedicated review days, but unit review will be incorporated into asynchronous work for the lesson prior. There will also be AP Calculus-only office hours before every unit exam if needed.**

**Unit 1 : Limits and Continuity (7 classes; August 21-September 9)**

**Big Ideas: Limits, Change, & Functions**

**Mathematical Practices: 1-3**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
1.2: Finding Limits Graphically and Numerically	<b>1.1:</b> CHA-1.A.1-3 <b>1.2:</b> LIM-1.A.1, B.1 <b>1.3:</b> LIM-1.C.1-4 <b>1.4:</b> LIM-1.C.5	1 class	<input type="checkbox"/> Limits Graphical and Numerical Guided Practice <input type="checkbox"/> Limits Task Cards <input type="checkbox"/> Limits Graph Interpretation WS <input type="checkbox"/> Limits Graphical Stations Activity
1.3 Evaluating Limits Analytically	<b>1.5:</b> LIM-1.D.1-2 <b>1.6:</b> LIM-1.E.1 <b>1.7</b> <b>1.8:</b> LIM-1.E.2 <b>1.9</b>	2 classes	<input type="checkbox"/> Limits Analytical Guided Practice <input type="checkbox"/> Analytical Limits Skill Builder <input type="checkbox"/> Limits Clue <input type="checkbox"/> Limits Scramble Card Match
1.4 Continuity & One-Sided Limits	<b>1.10:</b> LIM-2.A.1 <b>1.11:</b> LIM-2.A.2 <b>1.12:</b> LIM-2.B.1-2 <b>1.13:</b> LIM-2.C.1-2	1 class <b>Quiz</b>	<input type="checkbox"/> Continuity Guided Practice <input type="checkbox"/> Limits Card Match <input type="checkbox"/> Limits Free Response Analysis <input type="checkbox"/> Non-Traditional Composition Notes and Practice and/or Speed Dating Card Activity
3.5 Limits at Infinity/1.5 Infinite Limits	<b>1.14:</b> LIM-2.D.1-2 <b>1.15:</b> LIM-2.D.3-5	1 class	<input type="checkbox"/> Limits at Infinity Guided Practice
Intermediate Value Theorem (1.4), Assessment: 1 Quiz, Unit Exam	<b>1.16:</b> FUN-1.A.1	.5 class	<input type="checkbox"/> Continuity and IVT Skill Builder <input type="checkbox"/> Limits and Continuity Circuit Training <input type="checkbox"/> Limits 5 for 5

**Unit 2: Differentiation: Definition and Basic Derivative Rules (6 classes; September 11-September 27)**

**Big Ideas: Change, Functions, & Limits**

**Mathematical Practices: 1-4**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
2.1 The Derivative and the Tangent Line Problem p. 12 (Average and Instantaneous Rates of Change); Continuity and Differentiability	<b>2.1:</b> CHA-2.A.1, B.1 <b>2.2:</b> CHA-2.B.2-4, C.1 <b>2.3:</b> CHA-2.D.1-2 <b>2.4:</b> FUN-2.A.1-2	1.5 class	<input type="checkbox"/> Limit Definition of Derivatives Guided Practice <input type="checkbox"/> Recognize Definition of Derivative WS <input type="checkbox"/> Limit Definition of Derivative Card Match <input type="checkbox"/> Derivative Card Match
2.2 Basic Differentiation Rules and Rates of Change 5.1 The Natural Log Fn: Differentiation 5.4 Exponential Fns: Differentiation and Integration (Diff Only)	<b>2.5:</b> FUN-3.A.1 <b>2.6:</b> FUN-3.A.2-3 <b>2.7:</b> FUN-3.A.4, LIM-3.A.1	1.5 class <b>Quiz</b>	<input type="checkbox"/> Derivative Review WS
2.3 Product and Quotient Rules	<b>2.8:</b> FUN-3.B.1 <b>2.9:</b> FUN-3.B.2 <b>2.10:</b> FUN-3.B.3	1 class	<input type="checkbox"/> Derive Quotient Rule <input type="checkbox"/> Derivative Rules Data Tables <input type="checkbox"/> Data Tables, Graphs, and Generic Functions Stations
Assessment: 1 Quiz, Unit Exam			<input type="checkbox"/> Computing Derivatives Guided Practice (fill in WS) <input type="checkbox"/> Big 10 Multiple Representations of Derivative <input type="checkbox"/> 5 for 5 Derivatives

**Unit 3: Differentiation: Composite, Implicit, and Inverse Functions (6 classes; September 30-October 14)**

**Big Ideas: Functions**

**Mathematical Practices: 1, 3**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
2.3 Higher-Order Derivatives 2.4 The Chain Rule	<b>3.1:</b> FUN-3.C.1 <b>3.6:</b> FUN-3.F.1-2	1.5 class <b>Quiz</b> (.5 class)	<input type="checkbox"/> Chain Rule M&M Activity <input type="checkbox"/> Chain Rule Stations <input type="checkbox"/> Chain Rule and Numeric Functions <input type="checkbox"/> Chain Rule Free Response Questions <input type="checkbox"/>
2.5 Implicit Differentiation	<b>3.2:</b> FUN-3.D.1	1 class	<input type="checkbox"/> Inverse Trig Derivative Derivation <input type="checkbox"/> Guidelines for Implicit Differentiation <input type="checkbox"/> Implicit Differentiation Skill Builder <input type="checkbox"/> Implicit Differentiation Circuit Training

5.3 Inverse Functions (Derivatives of Inverses only)	<b>3.3:</b> FUN-3.E.1 <b>3.5</b>	.5 class	<input type="checkbox"/> Derivative of an Inverse Derivation, Notes WS <input type="checkbox"/> Derivative of an Inverse Exploration Activity <input type="checkbox"/> Big 10 Using Multiple Representations
Time Permitting: 5.6 (Inverse Trig Fns: Differentiation)	<b>3.4:</b> FUN-3.E.2	.5 class	
Assessment: 1 Quiz, Unit Exam			<input type="checkbox"/> Computing Derivatives Guided Practice (fill in WS) <input type="checkbox"/> Big 10 Multiple Representations of Derivative <input type="checkbox"/> 5 for 5 Derivatives

#### **Unit 4: Contextual Applications of Differentiation (6 classes; October 16-November 1)**

##### **Big Ideas: Change, Limits**

##### **Mathematical Practices: 1-3**

<b>Textbook Section</b>	<b>Topic: Learning Objective</b>	<b>Estimated Time</b>	<b>Possible Activities/Formative Assessments</b>
AP Topic: Interpreting the Meaning of the Derivative in Context and Rates of Change in Other Applied Contexts	<b>4.1:</b> CHA-3.A.1-3 <b>4.3:</b> CHA-3.C.1	.5 class	<input type="checkbox"/> AP Classroom Activity
AP Topic: Straight Line Motion	<b>4.2:</b> CHA-3.B.1	1 class	<input type="checkbox"/> Particle Motion Deconstruction Deriv. Only <input type="checkbox"/> Position, Velocity, and Acceleration WS <input type="checkbox"/> Four Corners for Particle Motion <input type="checkbox"/> Error Analysis (Interpreting Derivatives in Motion) <input type="checkbox"/> Particle Motion Reference Guide <input type="checkbox"/> PVA Foldable <input type="checkbox"/> Quick Sheet Particle Motion
2.6 Related Rates	<b>4.4:</b> CHA-3.D.1-2 <b>4.5:</b> CHA-3.E.1	1.5 class <b>Quiz</b> (.5 class)	<input type="checkbox"/> Practicing RR Problems <input type="checkbox"/> RR Examples WS <input type="checkbox"/> RR Guided Practice <input type="checkbox"/> RR in MC and FRQ Worksheet
3.9 Differentials (Tangent Line Approximation, Error) 3.8 Newton's Method	<b>4.6:</b> CHA-3.F.1-2	1 class	<input type="checkbox"/> Tangent Line Approximation Guided Practice <input type="checkbox"/> Tangent Lines and Linear Approximations WS <input type="checkbox"/> 3.8 lab outside class time if needed



8.7 Indeterminate Forms and L'Hopital's Rule (AB forms only)	4.7: LIM-A.1-2	1 class	<input type="checkbox"/> L'Hopital's Rule Guided Practice <input type="checkbox"/> L'Hopital's Rule Skill Builder <input type="checkbox"/> L'Hopital's Rule Four Corners <input type="checkbox"/> L'Hospital's Rule FR and Multiple Choice
Assessment: 1 Quiz, Unit Exam			<input type="checkbox"/> 5 for 5 Derivatives Review (part 2) <input type="checkbox"/> Derivatives Applications Problem Set

**Unit 5: Analytical Applications of Differentiation (7 classes; November 13-December 2)**

**Big Ideas: Functions**

**Mathematical Practices: 1-3**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
3.2 Rolle's Theorem and the Mean Value Theorem Extreme Value Theorem (p. 162) 3.1 Extrema on an Interval	5.1: FUN-1.B.1 5.2: FUN-1.C.1	1 class	<input type="checkbox"/> Theorems Foldable and/or Chart <input type="checkbox"/> Visualizing the MVT Guided Practice <input type="checkbox"/> Speeding MVT Guided Practice <input type="checkbox"/> Theorem's Card Match <input type="checkbox"/> Theorems Multiple Choice Practice WS <input type="checkbox"/> Theorems Multiple Choice and Free Response <input type="checkbox"/> Theorems Problem Set 2019
3.3 Increasing and Decreasing Functions.../3.4 Concavity and the Second Derivative Test/3.6 A Summary of Curve Sketching/ 1.4 Continuity and One Sided Limits (Cut 3.6 if necessary)	5.3: FUN-4.A.1 5.4: FUN-4.A.2 5.5: FUN-4.A.3 5.6: FUN-4.A.4-6 5.7: FUN-4.A.7-8 5.8: FUN-4.A.9-10 5.9: FUN.4.A.11 5.12: FUN-4.D.1. FUN-4.E.1-2	2 classes <b>Quiz</b>	<input type="checkbox"/> Project-highway vs street partner problem <input type="checkbox"/> Graph Analysis Card Scramble <input type="checkbox"/> Writing Justifications PP <input type="checkbox"/> Gallery Walk for Free Response <input type="checkbox"/> Curve Sketching and Composition of Fn LTF <input type="checkbox"/> Derivative Analysis Scavenger Hunt <input type="checkbox"/> Find the Error - FDT and Test for Concavity
3.7 Optimization Problems	5.10: FUN-4.B.1 5.11: FUN-4.C.1	1 class	<input type="checkbox"/> Optimization Packet
Assessment: 1 Quiz, Unit Exam			<input type="checkbox"/> 5 for 5 Derivatives Review (part 3) <input type="checkbox"/> Derivatives Applications Problem Set

**Unit 6: Integration and Accumulation of Change (11 classes; January 3-January 31)**

**Big Ideas: Change, Limits, Functions**

**Mathematical Practices: 1-4**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
4.1 Antiderivatives and Indefinite Integration 5.2 The Natural Log Fn: Integration (no logarithmic differentiation) 5.4 Exponential Functions: Differentiation and Integration (Integration only)	<b>6.6:</b> FUN-6.A.1-3 <b>6.8:</b> FUN-6.C.1-3	1 class <b>Quiz</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Integration Techniques-Using Formulas WS</li> <li><input type="checkbox"/> Integration Techniques Skill Builder</li> </ul>
4.3 Riemann Sums and Definite Integration	<b>6.2:</b> LIM-5.A.1-4 <b>6.3:</b> LIM-5.B.1-2, LIM-5.C.1-2	1 class	<ul style="list-style-type: none"> <li><input type="checkbox"/> QR Codes Riemann Sums</li> <li><input type="checkbox"/> Demonstration: TI Inspire emulator investigation</li> <li><input type="checkbox"/> Riemann Sums Area Approximation and Accumulation</li> <li><input type="checkbox"/> The Definite Integral as the Limit of a Riemann Sum Guided Practice (in Applications Section)</li> </ul>
4.2 Area 4.6 Numerical Integration (no Simpson's Rule)	<b>6.1:</b> CHA-4.A.1-4	2 classes	<ul style="list-style-type: none"> <li><input type="checkbox"/> Guided Notes</li> </ul>
4.4 The Fundamental Theorem of Calculus (FTOC part 1 and FTOC part 2)	<b>6.4:</b> FUN-5.A.1-2 <b>6.5:</b> FUN-5.A.3 <b>6.6:</b> FUN-6.B.1-3	2 classes	<ul style="list-style-type: none"> <li><input type="checkbox"/> FTOC AP Module</li> <li><input type="checkbox"/> Fundamental Theorem of Calculus Guided Practice</li> <li><input type="checkbox"/> First Fundamental Theorem of Calculus Skill Builder</li> <li><input type="checkbox"/> DISCOVERY—Part II of the Fundamental Theorem of Calculus</li> <li><input type="checkbox"/> FTC Applications Activity</li> </ul>
4.5 Integration by Substitution (Algebraic) Integration Using Long Division and Completing the Square	<b>6.9:</b> FUN-6.D.1-2 <b>6.10:</b> FUN-6.D.3	2 classes	<ul style="list-style-type: none"> <li><input type="checkbox"/> Integration by Substitution card match or fill-in</li> <li><input type="checkbox"/> Transcendentals Card Match (??)</li> <li><input type="checkbox"/> Calculus Clue</li> <li><input type="checkbox"/> Algebraic Integration Techniques Packet</li> </ul>
Assessment: 1-2 Quizzes, Unit Exam			<ul style="list-style-type: none"> <li><input type="checkbox"/> 5 for 5 Riemann Sums</li> <li><input type="checkbox"/> 5 for 5 Integration Techniques</li> </ul>

**Unit 7: Differential Equations (8 classes; February 5-February 24)**

**Big Ideas: Functions**

**Mathematical Practices: 1-4**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
6.1 Slope Fields and Euler's Method (Euler's Method BC only)	<b>7.3:</b> FUN-7.C.1-2 <b>7.4:</b> FUN-7.C.3	1 class	<input type="checkbox"/> Slope Fields Wikki Stix Activity
6.3 Separation of Variables (logistic equations BC only)	<b>7.1:</b> FUN-7.A.1 <b>7.2:</b> FUN-7.B.1-2 <b>7.6:</b> FUN-7.D.1-2 <b>7.7:</b> FUN-7.E.1-3	3 classes <b>Quiz</b>	<input type="checkbox"/> Separable Differential Equations Skill Builder <input type="checkbox"/> Guide on the Side Free Response for Separable Differential Equations <input type="checkbox"/> Free Response Separation of Variables
6.2 Differential Equations: Growth and Decay	<b>7.8:</b> FUN-7.F.1-2, FUN-7.G.1	1 class	<input type="checkbox"/> Four Corners Diffy Q Skill Review
Assessment: 1 Quiz, Unit Exam			<input type="checkbox"/> Slope Fields and Differential Equations Stations Activity <input type="checkbox"/> 5 for 5 Slope Fields and Diffy Q

**Unit 8: Applications of Integration (9 classes; February 28-April 2)**

**Big Ideas: Change**

**Mathematical Practices: 1-4**

Textbook Section	Topic: Learning Objective	Estimated Time	Possible Activities/Formative Assessments
4.4 The Fundamental Theorem of Calculus (Accumulation Functions, Functions Defined by Integrals, Average Value of a Fn)	<b>8.1:</b> CHA-4.B.1 <b>8.3:</b> CHA-4.D.1-2, CHA-4.E.1	1 class	<input type="checkbox"/> AP Module: Functions defined by Integrals <input type="checkbox"/> Picture-It <input type="checkbox"/> Interpreting Definite Integrals and Derivatives Error Analysis <input type="checkbox"/> Accumulation Circuit Training <input type="checkbox"/> Interpreting Calculus Skill Builder <input type="checkbox"/> Comparison of Instantaneous and Average Rates of Change
AP Topic: Applications of the Definite Integral as an Accumulator, Especially Motion	<b>8.2:</b> CHA-4.C.1	1 class	<input type="checkbox"/> Error Analysis: Interpreting Integrals in Particle Motion <input type="checkbox"/> Interpret This (Applications with Tables)
7.1 Area of a Region Between 2 Curves	<b>8.4:</b> CHA-5.A.1 <b>8.5:</b> CHA-5.A.2 <b>8.6:</b> CHA-5.A.3	1 class <b>Quiz</b>	<input type="checkbox"/> Area Between Two Curves Guided Practice



## Assessments

Students will have at least one quiz per unit and a unit exam to assess their knowledge. I will announce assessments well in advance (and generally, you can find the dates from the syllabus). **Please let me know at least two days in advance if there is a conflict that would prevent you from taking an assessment in the scheduled time.**

**Unit Exams:** At the conclusion of each unit, we will have an exam. Each exam will be worth 36 points and later scaled to 100 points. The exams will be a combination of multiple choice and multi-part free response questions. Each of these two sections will be further divided into a “with calculator” and a “without calculator” section (just like the AP Exam).

<u>Section 1:</u> 5 Multiple Choice – (With calculator)	Each problem is worth 1 point.	5 points
<u>Section 2:</u> 1 Free Response – (With calculator)	Each problem is worth 9 points.	9 points
<u>Section 3:</u> 10 Multiple Choice – (Without calculator)	Each problem is worth 1 point.	10 points
<u>Section 4:</u> 1 Free Response – (Without calculator)	Each problem is worth 9 points.	9 points

The multiple-choice points you receive will be multiplied to balance the two portions of the exam equally. There is no penalty for guessing on the Multiple-Choice sections.

**Final Exams:** The first semester exam will be cumulative for the first semester topics, and the final exam at the end of the year will be an AP practice test and will be administered before the AP Exam (thus, it will cover topics from the entire school year). The results of the final exam as well as the AP Mock exam can be used to review and prepare for the AP test.

**Note: There will not be dedicated review days or review packets for quizzes and unit exams. You will be expected to prepare for assessments outside of class using notes, materials, and homework assignments from the unit.**

## Homework

**Expect to have homework after every class, usually due the following class period.**

Each class students will work on assignments and activities. Some of these will be completed in class, while others may be completed at home as asynchronous classwork/homework. Many assignments will involve analysis, Rule of Four, and other higher order thinking skills required for success on an AP test or in college. **Any worksheets, activities, or HW problems that are expected to be turned in will be posted with due dates as a Microsoft Teams assignment. These assignments will generally be graded for accuracy, although answer keys will be made available on the Microsoft Teams assignment so students can check their work.**

In addition, some assignments may be suggested problems that do not need to be submitted for credit. This distinction will be made clear on Microsoft Teams (**suggested assignments will be labeled as such, still have due dates, but be worth 0 points**). If an assignment is not mandatory, the due date represents when that material should be mastered and/or when an assessment will be given over that content.

Homework quizzes may be given periodically over assigned work. These quizzes are graded for accuracy and count as homework grades.

## If Absent

If you miss a class, it is **your responsibility** to find out if there is any in-class work you need to make up. Most assignments and lessons can be found on Microsoft Teams. Email or ask me before or after class if you have any additional questions. You will be able to turn in missed assignments the class after you have returned to school without penalty. If you have been absent for an extended period and/or need additional time to get caught up, it is your responsibility to explain why you need more time and ask for an extension immediately, preferably by email. **Assessments (including homework quizzes) must be made up within a week of your return to school.**

## Tutoring

After school tutoring will occur once per week (non-AP Calc specific). AP Calculus tutoring will be offered as needed, particularly before assessments. Tutoring will be offered on Tuesday afternoons. You may sign up in Mr. Sabor's room before noon each Tuesday.

I am also more than willing to work with you during the school day if you need help. You can schedule time with me during mentor or stop by during senior study hall. I am also very responsive to email, so please send me any questions you have when you are not at school. If you are having trouble and need extra help, please let me know!

## Late Work

**Late work will be accepted for one week after its due date for 80% of your earned score (20% penalty). If there are exceptional circumstances, I may grant you an extension if you make the request and explain the circumstances BEFORE THE DAY IT IS DUE. Such requests should be made through email if possible.**

## Academic Dishonesty

All of a student's work is expected to be his or her own. Cheating, in any form, will not be tolerated. **If a student is caught cheating, they will receive a zero on the assignment and parents/guardians will be contacted.**

Skipping class is also unacceptable. If you are at school, but skip class, you will receive a 0 on all classwork for the day, receive late credit for any work that was due the period you skipped, and receive a 0 on assessments given that day.

## Collegiate Core Values/Classroom Expectations

1. Practice **Integrity**: Always turn in your own work.
2. Practice **Self-Discipline**: Much of the class is self-directed. It is up to you to make the most of your time and stay focused on assigned problems or the activity you are working on rather than socializing.
3. **Be Respectful**: This applies to your teacher and fellow students. Being respectful means showing up to class on time and starting your “do now” immediately, paying attention in class, staying awake and on task, raising your hand and NOT interrupting me, being helpful during group work, asking questions, using respectful language, and respecting the classroom (not throwing things or leaving trash around, etc.).
4. **Strong Academic Habits**: You will succeed in my course if you work hard from the very beginning. In math, concepts build on one another, so it is imperative that you practice and understand each new topic. Be ready to review old concepts at the beginning of the year and if they come up later in the semester. It is your responsibility to catch up if you miss an assignment. You need to be responsible and prepared for every class. Your homework should be completed on time. Your notebook should be organized and labeled accurately. You should always come to class with the required materials.
5. **Intellectual Curiosity**: Don’t be afraid to ask questions, even deeper questions that go beyond clarification. If you want to know why, ask!
6. **Compassion and Ethics**: Do not tell other students the answers to problems in group work or if they ask while you work on homework problems; explain the process to them so they can learn how to find the answer themselves.