AP Calculus AB 2021-2022

Course Information	
Instructor: Chris Walters Phone: (425) 385–7132 email: cwalters@everettsd.org Extra Help Hours: 7-7:30 AM and 2 – 3 PM	Textbook: Calculus: Graphical, Numerical, Algebraic by Finney, Demana, Waits, and Kennedy Class website: http://www.everettsd.org/jhs-cwalters All instructional materials can be accessed through Canvas

Course Description

AP Calculus AB is equivalent to a first-semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations.

This course will be offered for College in the High School credit through Everett Community College. This course will be 5 credits as MATH&151: Calculus 1 at a cost of $220. Additional information will be provided in class and from the link on my website above.

Learning Outcomes

LIMITS
- Evaluate limits graphically and using limit properties: one-sided limits, limits at infinity, infinite limits, indeterminate forms
- Apply limits to understand the behavior of a function.
- Use limits to determine continuity of functions

INTEGARTION AND THE FUNDAMENTAL THEOREM OF CALCULUS
- Understand the definition of a definite integral involving a Riemann sum
- Compute definite integrals using geometric methods and the Fundamental Theorem of Calculus
- Solve net change (i.e. motion), area, and volume problems using definite integrals
- Analyze functions defined by an integral

DIFFERENTIATION
- Know and use the definition of a derivative
- Apply rules of differentiation: basic, chain, implicit and inverse
- Apply derivatives to:
  - compute the instantaneous rate of change
  - find the slope of a tangent line
  - analyze the graph of a function
  - solve real-world applications: motion, related rates, optimization, exponential
- Solve separable differential equations

MATHEMATICAL PRACTICES
- Implement a mathematical process
- Connect different mathematical representation
- Justify reasoning and solutions
- Use correct mathematical notation
- Communicate results or solutions

Course Outline (AP exam weighting)

1. Limits and Continuity (10-12%)
2. Differentiation: Definition and Basic Rules (10-12%)
3. Differentiation: Composite, Implicit, Inverse (9-13 %)
4. Contextual Applications of Differentiation (10-15%)
5. Analytical Applications of Differentiation (15-18%)
6. Integration and Accumulation of Change (17-20%)
7. Differential Equations (6-12%)
8. Applications of Integration (10-15%)
9. AP Exam Review (100%)
10. Integration Techniques

Grades: http://www.everettsd.org/lms

Classwork/Assignment: 10%   Unit Tests and Projects: 90%

Letter Grade	A	A –	B +	B	B –	C +	C	C –	D +	D	F
Percent	100-93	92-90	89-87	86-83	82-80	79-77	76-73	72-70	69-67	66-60	59-0
GPA	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.7	1.3	1.0	0.0

Our mission is to provide a rigorous curriculum that sets high standards
and prepares all students for the future.

Classroom Policies & Expectations

Grading Policy

Mathematical Explanation for all problems: (may include the following but is not limited to)

- Algebraic steps
- Verbal explanations
- Graphs, tables, or pictures that are clearly labeled.
- Calculator entries, when using a calculator for computation.
- If using theorems, properties, or definitions with conditions, you must confirm the need conditions are met.
- Correct standard mathematical notation should be used.
- Decimal answers should be accurate to 3 places.
- Final answers can be equivalent to those provided in answer keys.

Classwork/Assignments (5 points each):

Expect daily assignments to practice concepts taught.
Late assignments will be accepted until unit test.

- Assignment turned in on time (1 point)
- Completeness
    - 100% complete (3 points)
    - 75% complete (2 points)
    - 50% complete (1 point)
- Mathematical explanations (1 point)
- Assignment corrected (different color ink)
    - Each problem marked right or wrong
    - Errors are corrected or a question is asked.

Assessments (100 points for tests, 50 for quizzes):

Comprised of calculator and non-calculator questions

- If you are absent the day before a test, you will still be expected to take the test.
- All tests must be completed on the day they are started.
- Multiple Choice questions (2 points)
- Short answer questions (5 points each):
    - Correct Solution (2 points)
    - Mathematical Explanation (3 points)

Test Correction Privileges:

- Students who are absent (unexcused) on the day of the test will lose the privilege to correct that test.
- Student must complete the test correction form before the next unit test.
- Corrections will earn back ½ the points missed up to 85%.
- Class time may not be used for corrections unless all required daily work is complete.

Extra Credit Opportunity:

- Bonus percentage points will be added to each unit assessment for the unit's assignments.
    Overall assignment score of 97% or higher earns 3% bonus on unit assessment, 87% or higher earns 2% and 77% or higher earns 1%

Behavior Expectations

- All school wide and district policies as described in the Student Handbook will be enforced.
- Students are expected to be respectful towards their peers, teacher, and classroom.
- **No Electronic Devices** (cell phone, headphones, etc.) will be allowed during class, except a calculator and a district issued device or equivalent without permission from the teacher.
- Drinks are allowed if the bottle has a closable lid (spill proof).
- Food is **not** permitted, unless required for medical reasons.

Materials

- Textbook: available from the library for checkout.
- Notebook (paper or digital) of your choice to keep your notes and classwork organized.
- Scientific calculator required. A graphing calculator, such as the TI-83+ or TI-84 is highly recommended and is required for those planning on taking the AP Exam.

Tips for Success

You can learn mathematics, but it won't happen by itself. You will have to work at it!

1. Participate in class.
2. Take and review your notes each day.
3. Attempt all problems assigned and ask about the questions you don't understand.
4. Come in for additional tutoring when you first start to struggle.