AP Calculus AB 2024-2025

Course Information

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Extra Help Hours: 7-7:30 AM and 2 – 3 PM

Textbook: Calculus for the AP Course
by Sullivan and Miranda
ISBN: 978-1-319-24431-6
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. Additional information will be provided in class and from the link on my website above or at www.everettcc.edu/chs.

Learning Outcomes

CHANGE
- Use derivatives to solve real-world problems involving rates of change.
- Use definite integrals to solve problems involving the accumulation of change over an interval.
- Use definite integral to solve problems involving the accumulation of change in area or volume over an interval.

LIMITS:
- Use definitions, theorems, and properties to justify claims about limits.
- Use definitions, theorems, and properties to justify claims about continuity.
- Use definitions, theorems, and properties to determine a limit and a derivative.
- Use definitions, theorems, and properties to approximate definite integrals using geometric and numerical methods.

ANALYSIS OF FUNCTIONS
- Draw conclusions about a function's behavior using existence theorems and derivatives.
- Relate the behavior of a function and its derivative.
- Apply derivative rules to simplify differentiation.
- Apply knowledge of geometry, mathematical rules, and the Fundamental Theorem of Calculus to simplify integration.
- Solve differential equations to determine functions and develop models.

MATHIEMATICAL PRATICES
- Implementing Mathematical Processes
- Connecting Representations
- Justification
- Communication and Notation

Course Outline

1. Limits and Continuity
2. Differentiation: Definition and Fundamental Properties
3. Differentiation: Composite, Implicit, Inverse Functions
4. Contextual Applications of Differentiation
5. Analytical Applications of Differentiation
6. Integration and Accumulation of Change
7. Differential Equations
8. Applications of Integration
9. AP Exam Review
10. Integration and Accumulation of Change
    Integration Techniques

Grades:

Classwork/Assignment: 10% Unit Tests and Projects: 90%
No changes to grades will be made based on AP Exam results

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

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

- Algebraic steps or verbal explanations
- Graphs, tables, or pictures that are clearly labeled.
- Calculator entries, when using a calculator.
- Correct standard mathematical notation.
- Decimal answers should be accurate to 3 places.
- Final answers can be equivalent to those provided

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.
4. If you don't know, do as much as you can.
5. Ask questions when you don't understand.
6. Come in for additional help when you first start to struggle.

Classwork/Assignments:

- Expect daily assignments to practice the concepts.
- Assignments are due at the beginning of the next class, where time will be given to review answers.
- Assignments will earn 1 point for each problem.
- Students are responsible for self-correcting and asking questions when they don't understand.
- Late assignments will be accepted until unit test with a 15% reduction in score.
- Excused absences will have 1 week grace period before late penalty is applied

Assessments (weighted to 100 points):

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

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 test corrections before the next unit test.
- Corrections will earn back ½ the points missed up to a max score of 85%.
- Must be completed in the classroom but not during class time 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.
- No violations of electronic device behavior expectations during unit.

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 the classroom.
- A 5-minute hall pass will allow **one** student out of the room at a time. A legible log will be kept.
- **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.

Everett Community College Course Math&151 Outcomes

Upon successful completion of this course, students will be able to:

1. Evaluate limits graphically and using limit laws.
2. Define and prove the continuity of a function at a point and on an interval.
3. Define, determine by definition, and interpret geometrically and physically the derivative of a function.
4. Apply the rules of differentiation including the chain rule, product rule, quotient rule, and implicit differentiation to find derivatives of transcendental functions and composites.
5. Use derivatives in graphing, related rates, and extreme value problems.
6. Define, interpret, and compute the differential of a function and use it in approximations.
7. Find antiderivatives and apply initial conditions.
8. Apply antidifferentiation to problems in rectilinear motion.
9. Evaluate indeterminate limits using L'Hopital's Rule.

Program Learning Outcomes are assessed in this course:

1. Interpret and manipulate mathematical language.
2. Create, use, and analyze graphs.

EvCC Core Learning Outcomes are assessed in this course:

1. Analytical Thinking
   - Effective Communication: Students will individually and/or collaboratively communicate across multiple expressive modes, applying relevant learned knowledge and demonstrating information literacy and research skills.
   - Equity and Social Justice: Students will evaluate the influence of power and privilege, identify shared and unshared meaning, and/or analyze the sources of their perspectives in advancement of equity and social justice.
   - Analytical Thinking: Students will apply quantitative and/or qualitative reasoning skills to solve problems, evaluate claims and support conclusions.

Everett Community College: Support for Students

By enrolling in this course for both high school and EvCC college credit students are eligible to obtain additional student support services, see below. If a student wishes to take advantage of these services please request through me, as your teacher and I will facilitate your connection to the college service.

- Counseling and Student Success
  College is an exciting and unique time in our lives. It can also bring a great deal of stress from things like family problems, academic expectations, financial responsibilities, and relationships. It is important that we all take care of ourselves and that we know where to turn for help. Please know that there are resources available right here on our campus. EvCC Counselors can assist with career counseling, academic/educational counseling, advising, and referral to community mental health resources.
- Library
  Information and services to support research and learning including books, media materials, and databases. Librarians assist students in locating information and developing research skills.
- Tutoring Center
  Free academic/tutorial support with course material, study skills, time management, and preparation for exams
- Writing Center
  Peer writing assistants offer feedback, ideas, and methods for editing and polishing work.
- For additional support services, visit the Everett Community College Student Resources website.

As an EvCC students you are expected to know and adhere to all college policies.

As outlined in the campus civility statement, Everett Community College is committed to providing a safe learning and working environment. The expectation is that all students will conduct themselves in a civil, respectable and appropriate manner as a responsible member of the college community. The Student Rights and Responsibilities Handbook identifies and describes college expectations, students' rights, and outlines the process for resolving disciplinary matters, including Student Code of Conduct violations.

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