AP Calculus Syllabus Outline

Ms. Jauregui – Lake Dallas High School

Fall 2025

Dear Parents and Guardians,

Welcome to AP Statistics at Lake Dallas High School! This syllabus outlines the course plan for your child's class this semester, including key topics, expectations, and how you can support their success. As required by Texas law (Senate Bill 12), this document serves as the instructional plan and is available for your review. I look forward to working with you and your child!

Contact Information

- **Teacher**: Ms. Jauregui
- **Email**: cjauregui@ldisd.net
- **Phone**: 940-497-4031
- **Conference Time**: 7th Period (1:25-2:10 PM) Monday - Friday
- **Best Way to Reach Me**: Email is always the best way to reach me on a consistent basis. I will respond by the end of the following school day.

Course Overview (Instructional Plan)

This course is intended to prepare students for the Advanced Placement (AP) Calculus AB test administered by College Board. As such, this semester your child will study the following topics in Calculus, based on the standards set by College Board in the Course and Exam Description (CED).:

1. **Unit 1: Intro to Calculus**

    - Learning objectives: Change at an instant (CED 1.1), defining limits and using limit notation (CED 1.2), estimating limit values from graphs (CED 1.3), estimating limit values from tables (CED 1.4), determining limits using algebraic properties of limits (CED 1.5), determining limits using algebraic manipulation (CED 1.6), selecting procedures for determining limits (CED 1.7), determining limits using the squeeze theorem (CED 1.8), connecting multiple representations of limits (CED 1.9), exploring types of discontinuities (CED 1.10), defining continuity at a point (CED 1.11), confirming continuity over an interval (CED 1.12), removing discontinuities (CED 1.13), connecting infinite limits and vertical asymptotes (CED 1.14), connecting limits at infinity and horizontal asymptotes (CED 1.15), intermediate value theorem (CED 1.16)

    - Activities: Exploratory lessons using real-world data and situations, practice questions from previous AP exams, question sets, quizzes, test

2. **Unit 2: Differentiation**

    - Learning objectives: Average and instantaneous rates of change at a point (CED 2.1), defining the derivative and using derivative notation (CED 2.2), estimating derivatives of a function at a point (CED 2.3), connecting differentiability and continuity (CED 2.4), Power Rule (CED 2.5), derivative rules (constant, sum, difference, and constant multiple) (CED 2.6), derivatives of cosine, sine, e^x, and natural logarithms (CED 2.7), Product Rule (CED 2.8), Quotient Rule (CED 2.9), derivatives of tangent, cotangent, secant, and cosecant functions (CED 2.10)

    - Activities: Exploratory lessons using real-world data and situations, practice questions from previous AP exams, question sets, quizzes, test

3. **Unit 3: Differentiating Composite, Implicit, and Inverse Functions**

    - Learning objectives: Chain rule (CED 3.1), implicit differentiation (CED 3.2), differentiating inverse functions (CED 3.3), differentiating inverse trigonometric functions (CED 3.4), selecting procedures for calculating derivatives (CED 3.5), calculating higher-order derivatives (CED 3.6)

- Activities: Exploratory lessons using real-world data and situations, practice questions from previous AP exams, question sets, quizzes, test

4. **Unit 4: Contextual Applications of Differentiation**

    - Learning objectives: Meaning of derivative in context (CED 4.1), straight line motion (how position, velocity, and acceleration relate) (CED 4.2), rates of change in applied contexts other than motion (CED 4.3), related rates (CED 4.4, 4.5), approximating values of a function using local linearity and linearization (CED 4.6), using L'hospital's rule for determining limits of indeterminate forms (CED 4.7)

    - Activities: Exploratory lessons using real-world data and situations, practice questions from previous AP exams, question sets, quizzes, test

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

    - Learning objectives: Mean Value Theorem (CED 5.1), Extreme Value Theorem, global and local extrema, and critical points (CED 5.2), increasing and decreasing intervals of functions (CED 5.3), first derivative tests to determine relative extrema (CED 5.4) using the candidates test to determine absolute extrema (CED 5.5), determining concavity of functions (CED 5.6), second derivative test to determine extrema (CED 5.7), illustrating graphs of functions and derivatives (CED 5.8), relationship between function, its first derivative, and second derivative (CED 5.9), optimization (CED 5.10, 5.11), behaviors of implicit relations (CED 5.12)

    - Activities: Exploratory lessons using real-world data and situations, practice questions from previous AP exams, question sets, quizzes, test

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Grading & Assignments

- **Grading**:

    - Major Grades (Quizzes and Tests): 60%
    - Minor Grades (Daily Assignments, Question Sets, Practice Questions): 40%

- **Assignments**:

    - Homework will be assigned regularly and will include assignments due the next day as well as assignments that are intended to be completed over several days.

        - It is important for students to do their assignments on time as this course builds on prior knowledge every single day!
    - All assignments are intended to help students practice their skills or highlight connections between material we have learned or will be learning soon.

Supporting Your Students

- **On a Regular Basis**:
    - Ask your student about what they learned in class
    - Check in with them to make sure they've completed all their daily assignments
    - Encourage them to try their best on all assignments and ask questions when they're stuck

- **If Their Grade is Less Than Ideal**:
    - Encourage and provide opportunities for your student to attend tutoring. This could include weekly tutorials or Falcon Library (more info about both can be found in my Canvas course).
    - Check Skyward to see what grades may be lower or missing, and encourage your child to check in to see what can be done about them
    - Make sure that any major grades (tests or quizzes) have been corrected and that corrections have been submitted on time
    - Encourage your student to work through additional problems that can be found in AP Classroom. We will discuss how to do this in class.

Thank you for supporting your child's education! Feel free to contact me with questions.

Sincerely,
Ms. Jauregui