Advanced Placement Calculus AB

Course Overview: AP Calculus AB

*AP Calculus AB focuses on students’ understanding of calculus concepts and provides experience with methods and applications. Through the use of big ideas of calculus (e.g., modeling change, approximation and limits, and analysis of functions), the course becomes a cohesive whole, rather than a collection of unrelated topics. The course requires students to use definitions and theorems to build arguments and justify conclusions. The course features a multi representational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. Exploring connections among these representations builds understanding of how calculus applies limits to develop important ideas, definitions, formulas, and theorems. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students will regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.*

Units and Activities: What will we be learning about and doing in this course?

Unit 1: Limits and Continuity
Unit 2: Differentiation: Definition and Fundamental Properties
Unit 3: Differentiation: Composite, Implicit, and Inverse Functions
Unit 4: Contextual Applications of Differentiation
Unit 5: Analytical Applications of Differentiation
Unit 6: Integration and Accumulation of Change
Unit 7: Differential Equations
Unit 8: Applications of Integration

Standards: What knowledge and skills will I gain by the end of this course?

This course will assess the knowledge and skills students build in key Anchor Standards and Content Standards.

**Anchor Standards:**

- **Understand and Persevere** - Students can make sense of problems and not give up when trying to solve them.
- **Model with Mathematics** - Students can clearly show work using numbers, words, symbols, and graphs.
- **Attend to Precision** - Students can review calculations and strategies to assess accuracy.

**Content Standards:** This course builds student knowledge using the Mathematical Practice standards. The content standards for AP Calculus AB are:
Assessment of Learning:
For information about assessment types, scoring, and overall grade calculation: click here.

Communication:

How Do I Access Work from Home, and What Should I Expect?
- All work will be posted in Google Classroom.
- The work will be explained during our in-person meetings and/or by video posted to Google Classroom.
- The work will also be explained in our Class Planner posted to Google Classroom.
- If you have any questions, email your teacher.

How Do I Know What My Grades Are?
- On Summative Assessments, teachers will provide both a 4-point grade and a letter grade.
- You can monitor your progress in the following ways:
  - By reading feedback and scoring returned to students on summative assessments.
- By monitoring the scores and Overall Course Mastery Grade in the Parent/Student portal on JumpRope. Reminders to check grades will be sent from the school.
- Communicating with your teacher if you are unclear.

**Where Can I Find This Syllabus during the School Year?**

- This syllabus will be available on the school website in each subject’s department tab once the school year is up and running. It will also be available in our Google Classroom.

**How Do I See What’s Due?**

- Assignment and summative assessment due dates with handouts are posted in Google Classroom, with connection to Google Calendar, for student access.

**How Do I See What’s Past Due?**

- If a student is missing a grade on an assessment, it will be listed in the red “Missing Assessment” section of the JumpRope Parent/Student Portal along with any attachments. Please contact your teacher if you have any questions.

**Materials:**

Graphing Calculator - preferably TI-83 or TI-84
Notebook, pencil, pen (blue or black ink)

**Schoolwide Procedures:**

*Please see the Student Handbook for Procedures and Policies related to:* Due dates and deadlines, extra credit, retaking assessments, and turnaround time for grade entry.

**Personal Mobile Devices:** This class will follow the procedures outlined in the student handbook.

**Classroom Expectations:**

Students should understand that this is a college level course, as such, much of the actual work and practice must be done outside of regular class time. The pace of the course is much more accelerated than in previous math courses and it is important that students do not fall behind. Students are encouraged to contact Mr. Bremel immediately with questions or concerns about keeping up with the pace of the course. All homework problems, regardless if assessed formally or informally, must be completed on time. Honesty and academic integrity are essential, students are responsible for their learning. Respect for other students in class is of utmost importance. Regular communication with Mr. Bremel is the best way to make sure students are keeping up and on track to reach the desired outcomes of the course.