

Mathematics

**Crater School of Business, Science, and Innovation**  
**AP Calculus Syllabus**

**Course Description**

Welcome to the study of the most significant achievement in the history of mankind. I firmly believe this to be true, and sincerely hope that by the time you finish this course, you will begin to agree. Calculus is the gateway to an amazing world of mathematics and applications. The language of calculus is everywhere. A sound understanding of calculus will help you better understand many aspects of your world.

Emphasis will be placed on a thorough understanding of the material rather than memorizing formulas and following algorithms. To that end assessments will include written and oral components, and graphing calculators will be used extensively as a means to visualize questions and experiment with difficult problems. The business end of calculus involves, foundationally, finding the slope of a curve and the area under a curve. Graphing calculators will be indispensable to solidify your understanding of these concepts since we will be able to generate and observe approximations, in our quest to seeing how calculus provides exact answers to these apparently impossible problems. Graphing calculators also have integral and derivative functions (calculus' answer to the slope and area of a curve) which will allow you to verify your ideas and work. You will need either a TI-83 or TI-84 graphing calculator.

Topics are presented using the "rule of four": graphically, numerically, algebraically, and verbally. Through this multifaceted approach, students gain an in-depth understanding of the material analytically, and verbally.

**Course Text**

Smith, Robert T., Minton, Roland B. Calculus – Early Transcendental Functions. 3rd ed. McGraw-Hill, 2007.

**Required Materials**

- TI-83 or TI-84 Graphing Calculator (no exceptions)
- Graphing paper (optional),
- College-ruled notebook paper,
- 3-ring binder
- Pencils
- Erasers (you will need them)

**It is in your best interest to read the section before each lecture and work out the examples in the text.**

Most assignments and lecture notes/videos will be posted on my web-page.

## Classroom Requirements

**1) Attendance:** It is mandatory that you show up on time everyday. Anyone who has missed or is tardy to lots of classes and is doing poorly in this course will not receive much sympathy from me. If you do miss class, it is your responsibility to get your homework assignments in on time and come in (on your own time) to get help on the material.

**2) Warm-ups:** Most days there will be an opening activity. Each Activity will require students write solutions to problems and show why solutions work either by calculator evidence or by proof. Discussions regarding these activities will help in understanding of previous days work.

**3) Homework:** You will get homework assignments daily. Assignments will include written work as well as heavy use of graphing calculators. A variety of problems from calculations to explorations with use of data will also be assigned. Students will be encouraged to work in study groups to complete each assignment. Keeping up on daily homework assignments is essential to learning Calculus. **DO NOT USE PEN for HOMEWORK**

Expect to spend 10-15 hours a week on homework assignments and reading the text.

**4) Tests and Quizzes:** Tests will be given at the end of each chapter and will be worth up to 100 points. You will not be able to re-take tests or quizzes. You will be required to show all your work for each test/quiz. Quizzes can be given at anytime and are worth up to 50 points. Finals will be given at the end of each semester. **Do Not Use a Pen to Take a Test or Quiz.**

**5) Grading Policy:** Grades will be weighted as follows:

Daily Homework	5%	
POW	10	
Quizzes	20%	
Chapter Test	33%	
AWEPA	5%	(Attendance, Work Ethic, Productivity, Attitude)
Projects	7%	
Final	20%	

DO NOT PROCRASTINATE.