

Southern Regional High School
Manahawkin, New Jersey
Course Syllabus

Department: Math

Course: Calculus I Advanced Placement

Marking Period 1

Topics/Units to be covered:

- Grading policy/classroom expectations
- Instantaneous versus average rate (algebraically)
- Limits, Continuity, Formal definition of a derivative
- Rules of derivatives – General rules, chain rule, implicit, log, exponential, inverse trigonometry
- Extreme value theorem, mean value theorem
- Quarterly

Marking Period 2

Topics/Units to be covered:

- Minimum/Maximum, concavity, increase/decrease – 1st & 2nd derivative tests
- Particle motion
- Optimization and Related rates
- Introduction to Antiderivatives
- Quarterly

Marking Period 3

Topics/Units to be covered:

- Rectangle approximation method (LRAM, RRAM, MRAM, trapezoids)
- Riemann sum, average value, total area versus net area.
- Fundamental theorem of Calculus part 1 and 2
- Differential equations, slope fields, initial value problems
- Rules of integration – U-substitution, integration by parts, exponential growth/decay, Newton's law of cooling
- Area between 2 curves
- Volume of a solid – rotation, cross section
- Quarterly

Marking Period 4

Topics/Units to be covered:

- Review for AP exam – 1st Wednesday in May
- Rocket project – design and build rockets from scratch. Use calculus to find velocity and acceleration through burnout and coast phases, maximum height and time
- Video project – either a music video or infomercial on calculus
- Final exam