



Chesapeake Bay Governor's School
For Marine and Environmental Science
Warsaw Campus

Calculus with Analytic Geometry I (MTH 173)

Fall 2016 – Spring 2017

Mark D. King

Course Description:

This yearlong course presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical and engineering science programs. Most CBGS students will take MTH 173 in their senior year.

Text:

Larson, Ron, and Bruce Edwards. *Calculus of a Single Variable*. 10th ed., AP Edition Updated. Boston, MA: Cengage Learning, 2017.

*Your textbook is the property of CBGS. Please **cover** your textbook and keep it covered all year!*

Course Credit:

5 dual enrollment credits

1 high school credit

Contact Information:

Office phone: (804) 333-1306

E-mail: mking@cbgs.k12.va.us

Required Materials:

Students will need a notebook (or 3-ring binder), pencils, erasers, graph paper, and a graphing calculator.

Schedule of Topics Covered:

Unit 1: Limits (Chapters 1 and 3)

- Finding limits graphically and numerically
- Evaluating limits analytically
- Continuity and one-sided limits

- Infinite limits
- Limits at infinity

Unit 2: Differentiation (Chapter 2)

- Secants, the tangent line problem, and the derivative
- Basic rules of differentiation
- Higher order derivatives
- Velocity and acceleration

Unit 3: More Advanced Rules of Differentiation (Chapter 2)

- The product and quotient rules
- The chain rule
- Implicit differentiation

Unit 4: Applications of Differentiation (Chapters 2 and 3)

- Related rates
- Curve sketching
- Optimization
- Newton's method

Unit 5: Integration (Chapters 4 and 7)

- Antiderivatives and indefinite integrals
- Definite integrals
- The Fundamental Theorem of Calculus
- Finding area under and between curves
- Integration by substitution

Unit 6: Logarithmic, Exponential, and Other Transcendental Functions (Chapter 5)

- Natural logarithmic function
 - Differentiation
 - Integration
- Exponential functions
 - Differentiation
 - Integration
- Bases other than e
 - Differentiation
 - Integration

Unit 7: Applications of Integration (Chapter 7)

- Volume

Additional topics may be covered if time permits.

Course Information and Policies:

Assignments:

Students will be assigned homework in MathXL (or WebAssign) on a regular basis. Students should expect short periodic quizzes, as well as one or more tests and/or projects for each unit. Worksheets, problems from the textbook, and other forms of assessment may also be periodically assigned. There will be a final project at the end of the second semester.

Grading:

MathXL and WebAssign assignments will be graded based on the student's final score upon submission. Homework from the textbook will **not** be graded unless I indicate otherwise.

Assignments will be graded on a point system. Each assignment has a specific number of points available and will be provided with each assignment. Your grade for that assignment can be found by dividing the points received by the total points available. Labs will be worth considerably more points than other assignments. Your final project will be worth 10% of your second semester grade.

I will regularly post grades on Schoology.

Letter Grade:

98 – 100%: A+

93 – 97%: A

90 – 92%: A-

87 – 89%: B+

83 – 86%: B

80 – 82%: B-

77 – 79%: C+

73 – 76%: C

70 – 72%: C-

67 – 69%: D+

63 – 66%: D

60 – 62%: D-

57 – 59%: F+

Below 57%: F

Make-up work policy:

If you miss a class, you are responsible for finding out which assignments you missed and for getting class notes from another student. Since MathXL assignments are available online, you should check MathXL daily while you are absent and attempt to keep up with missed assignments as much as possible. Late penalties will be removed from these assignments if they are made up within a timeframe approved by the instructor.

If you are absent on the day of a test or quiz you will be required to make it up after you return to class within a timeframe determined by the instructor. It will be your responsibility to arrange for a time to make up missed tests or quizzes.

Attendance:

Class attendance is required and you are expected to be on-time. The course attendance policy can be found in the Student Handbook. I will record absences and tardiness for each class.

Academic Dishonesty:

As set forth in the Student Handbook, students are required to abide by the CBGS Student Honor Code. If academic dishonesty is discovered, the honor code mandates severe and specific penalties that **will** be enforced.

Cell Phones:

Students are required to **turn off (silence)** and **put away** their cell phones once class begins. Students may use their phones in class only as instructed by the teacher. Playing games, taking photos, or texting friends is never acceptable. The official CBGS cell phone policy can be found in the Student Handbook.