

# Rocky Mountain Lutheran High School

## MATH 12: CALCULUS COURSE SYLLABUS

**INSTRUCTOR: MISS PRESSER**

**EMAIL: [kpresser@rmlhs.org](mailto:kpresser@rmlhs.org)**

### Course Description

This course introduces the concepts of differential and integral calculus. The course emphasizes understanding of calculus concepts, concentrating on the relationships between their symbolic, graphic, and real world representations. The first semester will focus on concepts of limit, derivative, definite and indefinite integrals. The second semester will focus on applications and preparation for the AP exam. Among the topics studied are: curve sketching, exponential growth and anti-derivatives. The course is designed to give students a sound understanding of basic concepts and to enable students to apply a variety of techniques to practical situations. Graphing calculators are used as an integral part of the course.

### Course Materials

- Textbook
- Paper
- Pencil
- Graph paper
- Graphing Calculator
- Three-ring Binder

### Course Requirements and Expectations

Students in this class are expected to

- participate in all classroom activities.
- complete all homework assignments.
- respect the opinions of others.
- come to class prepared, every day, on time.
- follow the rules and procedures outlined in this syllabus.

### Grading Procedures

Overall grades will follow the schools grading scale.

Grades will be compiled using the following percentages.

|                         |     |
|-------------------------|-----|
| Assignments/Quizzes     | 50% |
| Tests                   | 30% |
| Classroom Participation | 10% |
| Final Exam              | 10% |

## Classroom Policies

**LATE WORK: I WILL accept late work!** Let me emphasize that it is your responsibility for completing the work. Credit for unexcused late work will be reduced to a maximum of 50%. Credit for excused late work will not be reduced but must be submitted by the date determined by the teacher.

**TARDINESS:** Being late to class not only means you miss out on classroom activities, but that your disruption and distraction causes others to miss out as well. If you are late to a class and are unexcused please wait outside the door until I allow you to come in. Continual tardiness will result in a reduction of your grade.

**CAN I GO...?:** To your locker? To the bathroom? To get a drink? Generally the answer is **no**. Take care of your personal needs on your own time and come to class prepared. However, situations do arise when it becomes necessary for you to leave the room. If you need to leave, please wait for an appropriate time to ask.

**EXTRA CREDIT:** There will be a few occasions, extra credit assignments will be offered. Extra credit will not be counted toward your grade until the end of the quarter.

**COMMUNICATION:** There is no reason for you to ever wonder what your grade is. Please feel free to ask for your grade at any time. I will give you your cumulative grade after each chapter exam, so hopefully there will be no surprises.

**CLASS PARTICIPATION:** Active participation during class is expected and can be demonstrated by asking questions of and answering questions from the teacher. Students are also expected to participate fully in all group projects.

**DISCIPLINE:** By now you have been in school for enough years to understand what behavior is expected of you. Disciplined behavior is expected of you at all times. The bottom line of any set of rules and regulations for classroom behavior is *respect*. Demonstrate respect for the people and property in the classroom, and we will have a terrific year.

**EXTRA HELP:** If you find that you need additional help from the instructor, "My door is always open." Please ask me anything. I will be in the office every morning by 8:00 am. I am willing to meet with you at any time that is available.

## Course Content

### Chapter P – Preliminaries

- Graphs and Functions
- Linear Models and Rates of Change
- Fitting models to Data

### Chapter 1 – Functions and Limits

- Preview Calculus
- Finding and evaluating Limits
- Continuous and infinite Limits

### Chapter 2 – The Derivative

- The Derivative and tangent line problem
- Differentiation Rules
- Implicit Differentiation
- Related Rates

### Chapter 3 – Applications of the Derivative

- Extrema on an interval
- Rolle's Theorem and Mean Value
- Increasing and decreasing functions
- Concavity, limits at infinity
- Summary of curve sketching
- Optimization

### Chapter 4 – The Integral

- Antiderivatives and indefinite integral
- Area, Reiman Sums
- Fundamental Theorem of Calculus
- Integration by Substitution

### Chapter 5 – Logarithmic Functions

- Natural Logs: Differentiation and Integration
- Inverse Functions
- Inverse Trig Functions: Differentiation and Integ.
- Hyperbolic Functions

### Chapter 6- Differential Equations (*with time*)

- Slope Fields and Euler's Method
- Growth and Decay
- Separation of Variables
- First Order Equations

### Chapter 7- Applications of Integration (*with time*)

- Area of a Region Between Two Curves
- Volume: Disk and Shell method
- Arch Length and Surfaces of Revolution
- Work

As a student in Miss Presser's class, I have read and understand the syllabus for Calculus. I agree to abide by these rules and procedures, and to ask questions when I don't understand.

Signed,

\_\_\_\_\_ Dated: \_\_\_\_\_

Printed Student Name

\_\_\_\_\_

As a parent, I have also read and understand the policies and expectations set forth in this syllabus for Calculus. I will support these policies by encouraging my student to follow them.

Signed,

\_\_\_\_\_ Dated: \_\_\_\_\_

Parent Email Address

Best Contact Phone Number

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