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# M 171.01: Calculus I

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# Syllabus: M171 Calculus 1 - Spring 2018

## Instructors:

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## Moodle

This site will contain all information on this sheet plus more. Homework assignments and other information pertinent to this course (such as office hours and tentative schedule) will be posted at this web site.

## Learning Outcomes

- Understand the idea behind the definition of a limit. Use the rules associated to limits to determine the limits of transcendental, rational and piecewise defined functions.
- Understand the idea behind and the rules of infinite limits, limits at infinity, asymptotes, indeterminate forms and how to use L'Hopital's Rule.
- Explain the limit definition of continuity.
- Explain the limit definition of the derivative of a function, how it relates to the function itself, and how to use it to compute derivatives.
- Use derivatives to find tangent lines to curves and velocity for particle motion.
- Apply the power, sum, product, quotient and chain rules of differentiation.
- Use the derivatives of exponential, logarithmic, trigonometric and hyperbolic functions.
- Explain implicit and logarithmic differentiation.
- Apply the Intermediate and Mean Value Theorems.
- Graphically analyze functions including using continuity and differentiation to determine local and

global extrema, concavity, and inflection points.

- Use the derivative to solve related rate and optimization word problems.
- Explain Newton's Method for estimating zeros of a functions.
- Explain the Riemann integral, areas under graphs, antiderivatives and the Fundamental Theorem of Calculus.

## Text

[Active Calculus \(single variable, 2017 edition\)](#) is a free, open-source calculus text. The text is available in an [HTML](#) version, a [pdf](#) version. A [print](#) version may be purchased.

## Graded work

### Midterms

There will be three 50 minute in-class exams during the semester.

### Final Exam

There will be a common final exam on all material covered in the course. This exam is scheduled for Wednesday, May 9, 6:00 pm – 8:00 pm. (This is in the evening.)

### Weekly Homework

Written and online homework will motivate weekly quizzes. Written homework will not be collected and online homework will be submitted through the WebWork system.

To access WebWork, follow the link: <http://lennes.math.umt.edu/webwork2>. Once there, click "171-Calculus-I" to bring up a login window. As username use your last name (lowercase); your initial password is the last 6 digits of your student ID (with no dashes). Please change your password after logging in the first time by clicking "Password/Email" from WeBWork's Main Menu.

Working hard on the homework is how you will succeed in this course, so please take the homework seriously. It is okay to work together with classmates on homework assignments, but you must write up your own solutions in your own words.

### Reading questions

Reading questions (submitted through WebWork) precede class discussions for each section. They are designed to make it easier for you to absorb the material for the new section.

### Quizzes

Weekly quizzes are based on assigned homework. Quizzes are given at the start of class, so please be on time. There will be no make-ups for missed quizzes. The lowest two scores will be dropped.

## Differential skills test

To pass the course, you must score at least 80% on this test. It will be given for the first time in class on Tuesday, April 3. The test may be attempted repeatedly but must be passed by May 4.

## Calculators

You may use your favorite brand/model on homework and WebWork but no electronic devices will be allowed during quizzes nor exams. In the classroom I may use an online graphing calculator such as [desmos](#).

## Grading

- Online homework and reading questions: 15%.
- Quizzes: 15%.
- Midterms: 45%
- Comprehensive Final: 25%

≥ 93%	90%	87%	83%	80%	75%	70%	65%	62%	58%	55%	< 55%
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

## Guidelines and policies

### University dates and deadlines

You should be aware of the important dates and deadlines posted by the [Registrar's Office](#).

### Academic honesty

I take academic honesty very seriously and I will act on any transgressions that I notice. Misconduct is subject to an academic penalty in this course and/or a disciplinary sanction by the university. We all know that a record of academic misconduct is a very bad thing to have documented in your academic history.

All students should be familiar with the [Student Conduct Code](#).

### Disability modifications

The University of Montana assures equal access to instruction through collaboration between students with

disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.