Fall 9-1-2020

M 171.50: Calculus I (Online)

Kelly McKinnie
University of Montana, Missoula, kelly.mckinnie@mso.umt.edu

Syllabus for MATH 171, Calculus I, Online Fall 2020
Class dates: August 19 – Nov 25, 2020

Course Information:

- Instructor: Kelly McKinnie
- Moodle: Enrolled students should have automatic enrollment on the class Moodle page. Use your netID and password to log in to UMONLINE to access the class Moodle page.
- Textbook: Active Calculus by Matthew Boelkins. This is a free, open access textbook, available at the linked website: https://activecalculus.org/ACS.html. You are welcomed and encouraged to use the html or the PDF version of the book. You may also buy a print version on Amazon if you prefer to have a hard copy. The class will cover chapters 1-4.
- Prerequisites: M 122 (College Trig) or M 151 (Precalculus) or ALEKS placement >= 5 or M03-Maplesoft Calculus score >= 15.
- Internet: To take this online class you must have a stable internet connection in order to stream/download videos from youtube, complete the online homework assigned through WeBWorK, download and upload .pdf assignment files from Moodle and possibly take exams. You must also have the ability to take scans or pictures of your work and upload these files in .pdf form to your Moodle account. If you have concerns about being able to do these things please contact your instructor.
- Office Hours: Office hours will be held on zoom. Weekly hours will be posted on the class Moodle account's "Welcome" page.

Catalog Description:
Differential calculus, including limits, continuous functions, Intermediate Value Theorem, tangents, linear approximation, inverse functions, implicit differentiation, extreme values and the Mean Value Theorem. Integral Calculus including antiderivatives, definite integrals, and the Fundamental Theorem of Calculus.

Gen Ed Attributes: Math Competency Course

Learning Outcomes: Upon completion of this course a student will be able to

- Define infinite limits, limits at infinity, asymptotes, indeterminate forms and how to use L'Hopital's Rule;
- 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, and quotient 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 challenging related rate and optimization word problems;
- Explain the Riemann integral, areas under graphs, antiderivatives and the Fundamental Theorem of Calculus;
- Use technology appropriately to enhance their study of calculus.

The course:

Taking an online course requires a lot of self-teaching. In order to make this process easier on you, online videos are available which cover the sections of the book. This helps to mimic the in-class experience you would get by taking the class on campus. What you miss out on by taking this course online is the ability to ask questions in real time and use your peers and their knowledge to judge how you are understanding the material. You must carefully read the book and engage in productive struggle to master this material. Please use the instructor's zoom office hours for some real-time help on HW or the activities. Also, if you know of someone else taking the class, it is a great idea to work with them on the activities and the homework, as long as you are sure you are able to understand the material at the end of the day on your own. Exams will be proctored. Students are not to work together on exams.

It is recommended that you proceed through each chapter section in the following manner:

1. Read the section in the textbook.
2. Complete and upload the preview Activity
3. Watch the video(s) and check your answers on the preview activity.
4. Complete and upload the section activities
5. Complete the WeBWorK assignment.

WeBWorK Homework System:
WeBWorK is a free online homework system maintained by the Mathematical Association of America. Students will log into our course at this WeBWorK site. Your user name is your lowercase last name. Your initial password is the last 6 digits of your 790 number. All assignments are available at the start of the course. WeBWorK grades are transferred to your Moodle account after the 4 stated chapter deadline, though you may continue to improve your grade on the WeBWorK assignments throughout the semester. If you haven't used WeBWorK before, watch the Introduction to WeBWorK Video on the Moodle "Welcome" page.

Exams: 4 midterm exams will be given at specified times during the semester. These exams do not allow for any outside resources beyond a student, their paper and a pencil/pen. Unless otherwise noted, students must show all steps to their answer. Answers given without steps shown will receive no credit. See the Moodle page for exam dates.

All exams need to be taken in a proctored environment. The exams are written so as to enable you to get partial credit. To take the exams you must either secure an approved proctor who is willing to receive and administer the exam to you or sign up for zoom proctoring through your instructor. An approved Proctor Form is available on the "Welcome" page of the class Moodle page. Your or your proctor MUST be able to upload scans or pictures of your exam to moodle within the specified time.

Examples of acceptable proctors are administrators, instructors, or full-time staff members at K-12 schools or colleges/universities, human resource employees or ministers. Peer students, personal friends, relatives or subordinates are unacceptable as proctors.

Essentially, it needs to be clear that it is *you* that took the test and that you did *not* cheat on it. In this important time of social distancing, it may be more challenging to secure a proctor. Do not break your required/preferred social distancing to have your exam proctored! You are more than welcome to use the instructor's zoom proctoring. This will require you to have a stable internet connection and a video camera.

Final Exam: Covers the semester's material plus info on the grand finale assignment. This is a collection of shorter timed exams which are taken with the Moodle quiz function.

Course Requirements:

1. Preview Activities (5% of your grade, graded for completion only).
2. Section Activities (5% of your grade, graded for completion only).
3. WeBWorK homework (20% of your grade, immediate feedback).
4. Proctored exams (4 exams, 60% of your grade)
5. Grand Finale exam (10% of your grade)

This class is a semester long course. You may proceed at your own pace within the given due dates below.

Important dates for registration add/drop can be found on the registrar's website.

Important dates: Course Content

Dates	Topic
Sept 9	All* Chapter 1 materials due. Exam 1 is 5:00 – 6:30pm.
Sept 30	All* Chapter 2 materials due. Exam 2 is 5:00 – 6:30pm.
Oct 21	All* Chapter 3 materials due. Exam 3 is 5:00 – 6:30pm.
Nov 18	All* Chapter 4 materials due. Exam 4 is 5:00 – 6:30pm.
Nov 25	**Grand Finale exam** due

* It is highly recommended (and makes sense) that students complete the Chapter WeBWorK exercises before taking the Chapter exams, but technically the due date for ALL WeBWorK exercises is the very last date of the regular semester, November 18.

Incompletes

Incompletes are given at the discretion of the instructor. They are only considered in cases where the student has been in attendance and doing passing work during the majority of the semester. The request must be made based on circumstances beyond the student's control. Negligence and indifference are not acceptable reasons.

Classroom and Course-related Behavior

University policy requires that all of us in the classroom, whether in person or virtually, treat each other with respect, and refrain from behavior that will disrupt the educational process. If you would prefer to be called by a different name, or gender pronoun, from that which is listed on the course roster, please let your instructor know.

Student Conduct Code

All students need to be familiar with the Student Conduct Code. You can find it at http://www.umt.edu/student-affairs/dean-of-students/default.php or by searching in the "A to Z Index" on the UM home page. In particular, discrimination and harassment are not tolerated at the University of Montana. If you feel that you have been subjected to discriminatory or harassing behavior, please contact the Office of Equal Opportunity and Affirmative Action at 243-5710 or http://www.umt.edu/policies/browse/personnel/discrimination-harassment-sexual-misconduct-stalking-and-retaliation for help in addressing the situation. You can also report the discrimination or harassment to me or to another faculty member you trust.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

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.

Grade Scale

Cutoff Percentage:	Grade:
93%	A
90%	A-
87%	B+
83%	B
80%	B-
75%	C+
70%	C
65%	C-
62%	D+
58%	D
55%	D-