Spring 2-1-2022

M 171.50: Calculus I

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Syllabus for MATH 171, Calculus I, Online Spring 2022
Class Dates: January 17, 2022 – May 13, 2022

Course Information:

- Instructor: Ian Gonzales
- Moodle: Enrolled users 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 website available at the linked website: https://activecalculus.org/ACS.html. You are welcomed and encouraged to use the HTML or 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 in person and on zoom. Weekly hours will be posted on the class Moodle accounts "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

General Education Math-Literacy Learning Outcome: Upon completion of the mathematical literacy requirement, a student will be able to apply effectively mathematical or statistical reasoning to a variety of applied or theoretical problems.

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, area 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 in 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 office hours for some real-time help on homework 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 the 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 username 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 four stated chapter deadlines. If you haven't used WeBWorK before, watch the Introduction to WeBWorK video on the Moodle "Welcome" page.

Exams:
Four 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 sign up for Zoom proctoring through your instructor or attend the exam in-person. Students must submit a response on whether they prefer online or in-person proctoring via Moodle prior to the exam. Note that using the instructor's zoom proctoring will require you to have a stable internet connection and a video camera.

Final Exam: Covers the semester's material plus information 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 (four 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 in the "Calendar of Due Dates" Moodle section. Observe that deadlines come weekly on Friday at 8pm.
Important dates for registration add/drop can be found on the registrar's website.

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 from that which is listed on the course roster, or if you have a pronoun preference, please let your instructor know.

Student Conduct Code:
All students need to be familiar with the Student Conduct Code. You can find it at https://www.umt.edu/student-affairs/community-standards/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 https://www.umt.edu/policies/browse/personnel/discrimination-harassment-and-retaliation for help in addressing the situation. You can also report the discrimination or harassment to me or to another faculty member.

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 the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.

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-