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M 172.02: Calculus II

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M 172 Calculus II – Section R01 – Fall 2020

Basic Information Instructor: Caleb Huber

Email: caleb1.huber@umconnect.edu

Office phone: n/a

Office hours: 6-8 pm Tuesdays and Wednesdays,

in zoom code: 968 1223 8464

or by direct link: <https://umontana.zoom.us/j/96812238464>

Class Meetings: Monday, Tuesday, Wednesday, Thursday, and Friday 11:00-11:50, Ed 123

Course Catalog Description: 4 Credits. Offered autumn and spring. Prereq., M 171. Techniques of Integration. Area computations. Improper integrals. Infinite series and various convergence tests. Power series. Taylor's Formula. Polar coordinates. Parametric curves.

Learning Outcomes: The purpose of the courses M 171 and M 172 is to learn the basic concepts in differential and integral calculus. By the end of M 172 students should be able to:

1. Use the integral to find the area between two curves, and calculate volumes of revolution, work, the average value of a function, and arc length;
2. Use standard integration techniques, including trigonometric substitution, integration by parts, and partial fractions;
3. Identify and calculate improper integrals;
4. Use parametrized curves in rectangular and polar coordinates, and calculate their derivatives, arc lengths and enclosed areas;
5. Compute limits of infinite sequences, and test for monotonicity and boundedness;
6. Compute sums of geometric series and telescoping series;
7. Determine convergence, absolute convergence and divergence of infinite series using the standard convergence tests;
8. Compute the radius and interval of convergence of power series;
9. Compute Taylor series and Taylor polynomial approximation of functions.

Required Textbook: Calculus (Single Variable), 6th edition, by Hughes-Hallett, Gleason, McCallum, et al. It is available for purchase online at <https://www.wiley.com/WileyCDA/Section/id-831905.html>.

Calculators: Calculators can be a useful tool for mathematics, making computations less tedious and aiding in exploration of sound mathematical intuition. However, we must be careful. Relying too heavily on calculators can hinder the development of reasoning, estimation, and mental mathematics skills. Plus, it's important to be able to trust your own brain's computational power. Calculators can make mistakes too, and you will never find these mistakes unless you can do enough math in your head

to say “That doesn’t look right ...” For these reasons, calculators **will NOT be allowed or needed** on quizzes and exams. In class and on homework we will use calculators, desmos, and WolframAlpha for calculations and graphs.

Course Calendar:

Dates	Topic
August 27 (5 pm)	Last day students can add a course on CyberBear
September 9 (5 pm)	Last day students can drop a course on CyberBear or change grading option to audit
September 7 th (Monday)	No Class
September 15	Test 1 (in class)
October 6	Test 2 (in class)
October 21 (5 pm)	Last day to add/drop course by paper w/o Dean’s approval.
November 3 rd (Tuesday)	No Class
November 4	Test 3 (in class)
November 11 th (Wednesday)	No Class
November 18 (5 pm)	Last class day, and last day to petition to drop/add and change to CR/NCR
November 20	Final exam scheduled Friday, November 20, 8:00-10:00 am

Grade Breakdown:

Item	Percentage of Course Grade
WeBWork (online homework)	20%
Quizzes	20%
Three in-class exams	(15% each) 45%
Cumulative final exam	15%

Grading Scale:

Letter grades for the course are assigned based on the following percentages. An 89.9% is a B+, it does not round up to a 90%.

F	0-59%	C-	70-72%	B-	80-82%	A-	90-92%
D	60-69%	C	73-76%	B	83-86%	A	93-100%
		C+	77-79%	B+	87-89%		

Policies for Quizzes, Tests, and the Final:

Tests must be completed in class during regular class times unless the student has contacted me ahead of time to schedule a time outside of class to take it. Such accommodations will not be granted unless the student can provide valid evidence of such a need.

Homework:

Working hard on the homework is how you will succeed in this class, so, take the homework seriously! It is OK to work together with your classmates on the homework assignments, but you are responsible for fully understanding the problem and solution.

- **(WeBWork).** To access the online homework, visit the math department's WeBWork site (<https://lennes.math.umt.edu/webwork2>). From there you will be able to click on our class name (calculus-II_Huber) and then login. Your user ID is your last name (in lowercase), and your initial password is the last 6 numbers of your 790 student ID number. Please change your password. Let me know if you have problems logging in. If you registered for the class late I will need to manually enter you into the system.
- **Written Homework** from our textbook will be assigned weekly. While it will not be collected or graded, the weekly Quizzes (see below) will be based on the written homework, so make sure you can do all the problems on the written homework! Any one of them could show up on the Quiz.

Quizzes:

Usually every Thursday but not always. First 10-25 minutes of class. Quiz problems are usually taken from the written homework assignment. The lowest quiz score will be dropped.

Midterm Exams:

There will be three 50-minute in-class exams during the semester. If you have a legitimate schedule conflict with an exam, please let me know as early as possible.

Final Exam:

The final exam will be held Friday, November 20, 8:00-10:00 am. By enrolling in this course it is understood that you will be present for the final exam. Your final exam score is worth 15% of your final grade.

Course Guidelines and Policies:

Classroom and Course-related Behavior:

University policy requires that all of us in the classroom treat each other with respect, and refrain from behavior that will disrupt the educational process. Please refrain from using any electronics during class that are not directly related to what we are doing. **If you would prefer to be called by a different name, or gender pronoun**, than listed on the course roster, please let your instructor know. University policy requires all students to wear face masks. If you do not have a mask, you will be asked to leave. I as the instructor have the right to cancel class for everyone if you refuse to both wear a mask and leave the class. Please don't harm everyone's success just to make a point.

Student Conduct Code:

All students need to be familiar with the Student Conduct Code. You can find it 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 Title IX at 243-5710 or read UM's Policy on 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 or advisor 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 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.

Statement on Digital Access:

Digital devices (like laptops and cell phones) are becoming increasingly important to success in college. In this course, you may need digital devices to access readings, complete and submit written assignments, complete online quizzes, verify your attendance, take in-class polls, and more. I recognize that some students are unable to afford the cost of purchasing digital devices and that other students rely on older, more problem-prone devices that frequently break down or become unusable. I also recognize that those technology problems can be a significant source of stress for students. Given those challenges, I encourage students to contact me if they experience a technology-related problem that interferes with their work in this course. This will enable me to assist students in accessing support.

Due Dates and Late Work:

Extensions for Webwork Assignments:

If you cannot meet a deadline for a good reason, contact me before the due date has passed, and I will usually be able to give you an extension. (If I should receive too many extension requests, I might have to change my policy and only grant extensions in cases of documented illness or other exceptional circumstances beyond your control.)

Except in exceptional circumstances, quizzes/exams must be taken at their scheduled time. I will drop your lowest quiz score, to give you a buffer for unforeseen circumstances. If you know you have a conflict with a quiz/exam, please contact me **early** to see what arrangements can be made.