M 172 Calculus II – Section R01 – Fall 2020

Basic Information

Instructor: Nikolaus Vonessen
Email: nikolaus.vonessen@mso.umt.edu
Office Phone: 406-243-6222 (for leaving voicemail messages; email is preferred)
Office hours (Find me on the Math Department's People page.)
Class Meetings: Monday, Tuesday, Wednesday, Thursday, and Friday 11:00-11:50.

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 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 4	**Test 3** (in 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**

Grading Policy

Item	Percentage of Course Grade
Attendance	5%
Reading Questions	5%
WeBWorK (online homework)	20%
Quizzes	14%
Three in-class exams (14% each)	42%
Cumulative final exam	14%

Grade Scale

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

Policies for Quizzes, Tests, and the Final

This is a separate document, available on Moodle under "Course Information". It describes the policies for our remote exams; they may have to be updated during the semester.

Required Assignments and Tests

Attendance

Showing up regularly to class is the key to successfully completing this course. Therefore, attendance counts for 5% of the course grade. I will check attendance using Zoom logs. Please use your **full (preferred) name** when signing into Zoom so I can easily identify you. Of course, everyone has to miss class once in a while, so you get a full score for attendance if you attend 80% of our class meetings.

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. There will be three components to your homework.

1. **Reading questions**.
   I will expect you to read a section from the textbook almost every day**,** after we've introduced it in class. After reading the section, you will take a quiz on Moodle about the reading. These Reading Quizzes will constitute 5% of your grade, and the lowest 4 scores will be dropped. Before grading each question with a score between 0 and 1, I will ask myself "can I tell from the student's answer that they read the assigned material and made a solid effort to understand it?"

2. **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.
3. **Online homework (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 (172-Calculus-II_Vonessen) 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.

Quizzes

Weekly, mostly Fridays, 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 14% of your final grade.

Course Guidelines and Policies

Recording of Class Meetings

Because our class is a remote class, class meetings via Zoom will be recorded. I will let you know if this policy changes.

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.

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 Reading Quizzes and 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.