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M 172,01: Calculus II

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M172 Calculus II – Spring 2022

Instructor information:

Section 01 (9am) Instructor: Elizabeth Gillaspy

Office: Math 012

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Office Phone: 243-4126

Office hours: Monday 4-5 PM; Tuesday 1-2 PM; Friday 10-11 AM; or by appointment.

Course description:

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 M171 and M172 is to learn the basic concepts in differential and integral calculus. By the end of M172 students should be able to:

1. Use standard integration techniques, including trigonometric substitution, integration by parts, and partial fractions;
2. Identify and calculate improper integrals;
3. Use parametrized curves in rectangular and polar coordinates, and calculate their derivatives, arc lengths and enclosed areas;
4. Compute limits of infinite sequences, and test for monotonicity and boundedness;
5. Compute sums of geometric series and telescoping series;
6. Determine convergence, absolute convergence and divergence of infinite series using the standard convergence tests;
7. Compute the radius and interval of convergence of power series;
8. Compute Taylor series and Taylor polynomial approximations of functions.

Required textbook:

Calculus (Single Variable), 6th edition, by Hughes-Hallett, Gleason, McCallum, et al. You can buy the electronic version for \$45 at <https://www.wiley.com/WileyCDA/Section/id-831905.html>.

Calculators: Calculators will NOT be allowed or needed on quizzes and exams. In class and on homework we will use calculators, desmos.com, wolframalpha.com and Mathematica for calculations and graphs.

Course Calendar:

Dates	Topic
Jan 26	Last day students can add a course on CyberBear
Feb 7	Last day students can drop a course on CyberBear or change grading option to audit
Mar 29	Last day to add/drop course by paper w/o Dean's approval.
May 6	Last class day, and last day to petition to drop/add and change to CR/NCR.
May 11	Final exam scheduled Wednesday May 11, 6-8pm location TBD.

Required assignments and tests:

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 assignments.

I will expect you to read a section from the textbook almost every day, after we've introduced it in class. Sometimes, I'll ask you to comment on the reading in Perusall; other times there will be a Reading Quiz in Moodle. The Reading Assignments will constitute 6% of your grade, and the lowest 4 scores will be dropped.

2. Written Homework will be assigned weekly. The written homework will not be graded, but it will be the basis for the weekly Quiz. 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). WeBWorK will generally be due Mondays (sometimes Tuesdays instead) and Fridays at 11 PM. To access the online homework, you can visit the website <http://lennes.math.umt.edu/webwork2> . From there you will be able to click on our class name (172-Calculus-II) and then login. Your user ID is your last name, your initial password is your 790 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, generally on Wednesdays. First 10-15 minutes of class. Quiz problems are taken from the written homework assignment. To give everyone a buffer for busy weeks and unforeseen circumstances, although there will be 13 quizzes, worth 10 points each, the Quiz category will be graded out of 110 points. (You can think about this as that I'm dropping the lowest two quiz scores.)

Projects:

To help you see the big picture of this course, and how the pieces fit together, I will ask everyone to do a Semester Project. You'll give a 12-to-15-minute presentation to the class on your chosen topic, and write a short (about 3 to 5 pages) report for me about it. Projects can be done in groups of up to 3 people. We'll figure out the project topics and presentation dates in February; presentations will occur in March or April.

Exams:

There will be 3 50 minute in-class exams during the semester (**Friday, February 11; Friday, March 11; Friday, April 15**). If you have a schedule conflict with an exam, please let your instructor know as early as possible.

Final Exam:

The final exam will be held **Wednesday, May 11, 6:00 PM – 8:00 PM, Location TBD**. By enrolling in this course it is understood that you will be present for the final exam. Your final exam score is worth 17% 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 pronoun, than is indicated on the course roster, please let me 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.

COVID Guidelines

- Mask use is required within the classroom.
- If you feel sick and/or are exhibiting COVID symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress. All class materials (readings, homework) are available online, and I am happy to facilitate Zoom office hours or classes as needed.
- UM recommends students get the COVID vaccine and booster. Please direct your questions or concerns about vaccines to the Curry Health Center.
- Drinking liquids and eating food is discouraged within the classroom.

Digital Access

In this course, you may need digital devices (computer or phone) to access readings, complete and submit written assignments, complete online homework, coordinate with other students regarding group projects, or complete and submit group projects. I recognize that some of you are unable to afford the cost of purchasing digital devices and that others rely on older, more problem-prone devices that frequently break down or become unusable. I know that those technology problems can be a significant source of stress. So, I encourage you to contact me if you have a technology-related problem that interferes with your work in this course. I will do my best to assist you in accessing support.

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.

Grading policy

Item	Percentage
Reading Assignments	5.00%
Webwork	15.00%
Quizzes	20.00%
Semester Projects	7.00%
In class exams (3; 12% each)	36.00%
Cumulative final exam	17.00%