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Fall 9-1-2021

M 172.01: Calculus II

Elizabeth A. Gillaspy

University of Montana, Missoula, elizabeth.gillaspy@umontana.edu

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Recommended Citation

Gillaspy, Elizabeth A., "M 172.01: Calculus II" (2021). *University of Montana Course Syllabi*. 12366.
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M172 Calculus II – Fall 2021

Instructor information:

Section 01 (11am) Instructor: Elizabeth Gillaspy

Office: Math 012

Email: elizabeth.gillaspy@mso.umt.edu

Office Phone: 243-4126

Office hours: Monday 8:30 – 9:30 AM; Wednesday 10-11 AM; Friday 2-3 PM; 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 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.com, wolframalpha.com and Mathematica for calculations and graphs.

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 questions.**
We 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 6% 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 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 of them could show up on the Quiz.
3. **Online homework (Webwork).** WeBWorK will generally be due Wednesdays 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 the last 6 numbers of your student ID. 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 Mondays. First 10-15 minutes of class. Quiz problems are taken from the written homework assignment. The lowest 2 quiz scores will be dropped.

Exams:

There will be 3 50 minute in-class exams during the semester (**Tuesday, Sept 28; Tuesday, Oct 26; Tuesday, Nov 23**). 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, Dec 15, 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 20% of your final grade.

Course guidelines and policies:

COVID Policies

- Mask use is required in all classrooms at UM.
- UM recommends students get the COVID-19 vaccine. Please direct your questions or concerns about vaccines to Curry Health Center.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please don't come to class. Instead, contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, we will make sure you keep up in M 172! I will offer Zoom office hours, and so does the Math Learning Center. I will also share either my notes from class, and/or a video recording of class, with students who cannot attend class.
- To facilitate contact tracing, please keep at least 6 feet away from classmates who are not in your group.
- Class attendance and seating will be recorded to support contact tracing efforts.
- Drinking liquids and eating food is discouraged within the classroom.

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.

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 Questions	6%
Webwork (15%) Quizzes (20%)	35%
In class exams (3; 13% each)	39%
Cumulative final exam	20%