

Mathematics 172

CALCULUS II

Fall 2016

Section 02: MTW F 11:00 a.m.-11:50 a.m. MATH 103

Section 03: MTW F 1:00 p.m.-1:50 p.m. MATH 108

Instructor: Dan Johnston

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Office Phone: none

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Office Hours: Thursday 1:00 p.m. - 3:00 p.m. and by appointment

Textbook: *Calculus, Single Variable*, 6th edition, by Hughes-Hallett.

Calculator: Calculators are technically required for this course. 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, many students rely too heavily on calculators which can hinder the development of reasoning, estimation, and mental mathematics skills. For these reasons, calculators will generally NOT be allowed on quizzes and exams.

Learning Outcomes:

1. Use the integral to find the area between two curves, volumes of revolution, work and the average value of a function;
2. Apply integration by direct and trigonometric substitution, parts, and partial fractions;
3. Calculate improper integrals and understand what it means for an integral to be improper;
4. Explain and apply parametrized curves in rectangular and polar coordinates, their derivatives, arc lengths and enclosed areas;
5. Use the integral to find arc length;
6. Explain and apply infinite sequences of real numbers, their monotonicity and boundedness, and the Monotonic Sequence Theorem;
7. Explain and apply convergent series of real numbers, geometric series, telescoping series, and the basic test for divergence;
8. Explain and apply the integral, comparison, limit comparison, and alternating series tests for series convergence;
9. Explain and apply absolute convergence and the ratio test;
10. Explain and apply power series, radius of convergence, and the integration and differentiation of power series;
11. Explain and apply Taylor series and Taylor polynomial approximation of functions.

Homework: Regular assignments will be made, but generally not collected. Homework Quizzes will be given covering this material. Each quiz will be announced in advance and will count 20 points. The lowest two quiz scores will not count.

Exams: There will be three 50 minute exams, each of which will be 100 points (for a total of 300 points). The final exam will be 100 points, but counted twice (for a total of 200 points on the final exam). So there are five exam scores, each of which will be 100 points. Only the best four scores will count. So there are four exams, for a total of 400 points.

The final exam is a comprehensive exam and is scheduled

Friday, December 16, 6:00 p.m. - 8:00 p.m. in Uray Hall

Do not miss the final exam.

Important Dates: Labor Day Holiday	Monday, 5 September;
Last day to add/drop by Cyberbear, or select Audit grade option	Monday, 19 September (5:00pm);
Last day to drop (no \$\$ back)	Monday, 31 October (5:00pm);
Election Day Holiday	Tuesday, 8 November;
Veterans' Day Holiday	Friday, 11 November;
Thanksgiving vacation	23–25 November.
Last day of regular class	Monday, 12 December

Attendance: You are expected to attend class regularly. **You are responsible for all the material presented and all announcements made on the days you are absent or you are late.**

Accommodations: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may 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 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

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. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://life.umt.edu/vpsa/policies/student_conduct.php.