

## Math 172 Calculus II, Section 3: Spring '18

Catalog Description for Math 172 Offered autumn and spring. Prereq., M 171 (MATH 152). Techniques of Integration. Area computations. Improper integrals. Infinite series and various convergence tests. Power series. Taylor's Formula. Polar coordinates. Parametric curves.

### Learning Outcomes

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.

Office hours: to be announced

Text: Hughes-Hallet, D. et al. (2009). Calculus, Single variable (6<sup>th</sup> ed.). Danvers, MA: John Wiley and Sons, Inc.

Website: I will use a moodle page, mostly as a document repository (not as a direct teaching tool). I will make it visible sometime during the first week.

Evaluation: At present, I am thinking that there will be four in-class tests, and a final. We will have common final for 171-172 on Wednesday May 9, from 6-8 p.m. The place will be announced but it is usually held in one of the underground lecture halls. p.m. . Tests will be announced at least a week in advance. There will be (announced) quizzes and perhaps some hand in problem sets (that is, graded homework) if the grader I talked with last semester is willing to work for me. Extraordinary performance on the final may, at the instructor's discretion, be the basis for raising a grade.

Technology: Although the teacher is fairly 'traditional', class demonstrations will utilize Maple, Geogebra, Desmos, and Python. Calculators, and all electronic devices, are not permitted on the

final. Primitive calculators are permitted on in-class tests (the definition of a primitive calculator is one whose memory capability is limited to a single additive register. None of the usual school TI calculators are dumb enough.)

Grading Scale: The cutoffs for A is 0.9, for B: 0.8, for C 0.65, for D: 0.55. Pluses and minuses will be used, the increment is usually about 3 points. (e.g. to get a B+ the cutoff will be around 0.87.)

Accommodation. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you think that you may have a disability adversely affecting you academic performance, and you have not already registered with DSS, please contact DSS in Lommassen 154. I will work with you and DSS to provide an appropriate accommodation.

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.

Student Conduct Code: All students need to be familiar with the Student Conduct Code. The Code is available for review online; Search for "Student Conduct Code" via the "A to Z Index" link on the UM home page, at present at the upper right corner.)