1-2014

M 172.03: Calculus II

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Math 172 Calculus II, Section 3: Spring '14

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 Goals:

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. Trigonometric integrals;
3. Use the integral to find arc length;
4. Explain and apply infinite sequences of real numbers, their monotonicity and boundedness, and the Montonic Sequence Theorem;
5. Explain and apply convergent series of real numbers, geometric series, telescoping series, and the basic test for divergence;
6. Explain and apply the integral, comparison, limit comparison, and alternating series tests for series convergence;
7. Explain and apply absolute convergence and the ratio and root tests;
8. Explain and apply power series, radius of convergence, and the integration and differentiation of power series;
9. Explain and apply Taylor series and Taylor polynomial approximation of functions;
10. Explain and apply parametrized curves in rectangular and polar coordinates, their derivatives, arc lengths and enclosed areas.

Teacher: Greg St. George

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Office hours: Monday & Friday 2:10-3:00, Tues. & Wedn. 12:10-1:00. These may need to be changed as the semester proceeds to accommodate various committee meetings and other assorted administrative duties. Any changes will be announced in class.

Text: Hughes-Hallet, D. et al. (2009). Calculus, Single variable (5th ed.). Danvers, MA: John Wiley and Sons, Inc.

Website: I think I will set up my own page this semester. I will let you know when it is available.

Evaluation: There will be three tests and a final in common with the other 171 sections. There will be (announced) quizzes and perhaps some hand in problem sets.

Accomodation. 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.

Software and Calculators: There will be no calculators used the final; they can be used on tests as long as they do not have a resident CAS.

Tests, Final Exam: Like last semester, we will have three tests and a final. The final is common, and will be Wednesday evening of finals week from 6-8 in the evening. The three tests will be in class. Thee may be some quizzes to get you ready for the tests; these will count toward your final grade if they end up helping you.

Grading Scale: The cutoffs for A is 0.9, for B: 0.8, for C 0.65, for D: 0.55. Plusses 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.)

The following two sections are required by the provost:

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; at this writing (Aug. 25, 2013) there is a link to the .pdf at

`http://life.umt.edu/vpsa/student_conduct.php`

(You can also find it is to search for "Student Conduct Code" via the "A to Z Index" link on the UM home page, at present at the upper right corner.)