

Syllabus for M 181 – Honors Calculus 1 – Fall 2017

Professor: Jennifer Brooks

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Class meetings: 11:00 -11:50 (MTWF), Math 312

Office hours: Monday, Wednesday 2:00 – 3:00, Friday 1:00 – 2:00, or by appointment.

Text: *Calculus*, 6th Edition, Hughes-Hallett, et al, Wiley.

Learning Outcomes

This course covers the basics of differential and integral calculus. More specifically, at the end of this course students should be able to:

1. Explain the definition of limit, compute it in elementary cases, and determine the limits of transcendental, rational and piecewise defined functions;
2. Compute infinite limits, limits at infinity, asymptotes, and indeterminate forms (the latter using L'Hopitals Rule);
3. Explain the limit definition of continuity;
4. Explain the limit definition of the derivative of a function, and use it to compute derivatives;
5. Use derivatives to find tangent lines to curves and velocity for particle motion;
6. Apply the power, sum, product, quotient and chain rules of differentiation;
7. Compute the derivatives of exponential, logarithmic, and trigonometric functions;
8. Use implicit differentiation;
9. Explain the Intermediate and Mean Value Theorems in concrete settings;
10. Analyze the graph of a function, using continuity and differentiation to determine local and global extrema, concavity, and inflection points;
11. Use the derivative to solve related rate and optimization word problems;
12. Use Newtons Method to estimate the zeros of a function;
13. Use the Fundamental Theorem of Calculus to calculate Riemann integrals, find the area under a given graph and compute the derivative of a function defined by an integral.

Assessment

There will be four components:

Homework: 15%

Quizzes: 15%

Three exams: 45%

Cumulative final exam: 25%

Homework

Each Wednesday at the beginning of class, all homework problems assigned the previous week are due. Your two lowest homework scores will be dropped. **Late homework will not be accepted.**

Quizzes

Each Wednesday there will be a 15 minute quiz. There will be no quiz during the week of an exam. Your lowest quiz score will be dropped, and hence make-up quizzes will not be given.

Exams

In-class exams will be given on **Tuesday, September 26, Tuesday, October 24, and Tuesday, November 28.**

Students with Disabilities

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction for students with disabilities in collaboration with instructors and Disability Services for Students, which is located in Lom-masson Center 154. The University does not permit fundamental alterations of academic standards or retroactive modifications.

Academic Misconduct

All students need to be familiar with the Student Conduct Code. You can find it in the “A to Z Index” on UM’s home page.

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.

Important Dates

Sept. 4 (Monday): No class. (Labor Day)

Sept. 26 (Tuesday): Exam 1

October 24 (Tuesday): Exam 2

Nov. 10 (Friday): No class. (Veteran’s Day Holiday)

Nov. 22 - 24 (Wed. - Fri.): No class. (Thanksgiving)

Nov. 28 (Tuesday): Exam 3

Dec. 18 (Monday): Final Exam (8:00 am – 10:00 am)