Spring 2-1-2017

M 273.01: Multivariable Calculus

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Syllabus for M 273: Multivariable Calculus (Spring 2017)

In Calculus I and II (M 171 and 172) you learned the basics of the calculus of functions of a single variable. This course is an introduction to the calculus of functions of several variables. In particular, we will study differentiation and integration for such functions.

Instructor Information

Instructor: Nikolaus Vonessen
Office: Math 207
Email: nikolaus.vonessen@umontana.edu
Phone: (406) 243-6222

Office hours: Posted on my webpage, which is linked from the math department website

Good times to see me are after class and during office hours.

Required Textbook

Multivariable Calculus, 6th edition, by McCallum, Hughes-Hallett, Gleason et al., Wiley, ISBN 978-0-470-88867-4. The UM Bookstore stocks the loose-leaf edition with ISBN 9781118233788. You can also buy (rent) the e-book (note that 90 days is not long enough). We will cover most of Chapters 12-19.

Learning Outcomes

Upon completion of this course, a student will be able to:

1. Explain three-dimensional coordinate systems, dot and cross products, equations of lines and planes, cylinders and quadric surfaces;
2. Explain vector-valued functions and space curves, their derivatives, arc length, and motion in space;
3. Explain limits, continuity and partial derivatives of functions of several variables;
4. Explain tangent planes to surfaces and linear approximations;
5. Explain the chain rule, directional derivative and gradient vector, extreme values and Lagrange Multipliers;
6. Explain double and triple integrals over general regions, and their applications;
7. Explain triple integrals in cylindrical and spherical coordinates;
8. Explain vector fields, line integrals and the Fundamental Theorem of Line Integrals;
9. Define Green's Theorem;
10. Explain divergence of vector fields;
11. Explain surface integrals and the Divergence Theorem.

Course Grade

- 40% homework and quizzes:
  - WeBWorK online homework
  - paper-and-pencil homework assignments and/or quizzes
- 40% two tests
- 20% comprehensive final exam (with emphasis on the last part of the semester)

Grading Scale

Cutoff Percentage:	93%	90%	87%	83%	80%	75%	70%	65%	62%	58%	55%
Grade:	A	A-	B+	B	B-	C+	C	C-	D+	D	D-

Tests

If you miss a test for a legitimate reason, and if you inform me about it in a timely manner, we will make alternate arrangements (e.g., a make-up test or substituting the grade of the final exam for the missed test).

WeBWorK Online Homework

The link to the online homework system is http://lennes.math.umt.edu/webwork2/273-Vonessen/. Your username is your family name (i.e., last name). Enter it in lowercase, i.e., do not capitalize the first letter. Your initial password consists of the last six digits of your UM student ID. Please change your password during your first login (click on "User Settings" in the "MAIN MENU" on the left). **Please check regularly for WeBWorK assignments — there will usually be one for each section we cover.**

Paper-and-Pencil Homework and/or Quizzes

Each Wednesday at 4 pm, all pencil-and-paper homework problems assigned the previous week are due. Late homework will normally not be accepted (unless you made arrangements with me in a timely manner). The homework will only be partially graded. We may have quizzes in addition to the written homework, or as a substitute.

Email

Make sure you either check your umontana email regularly, or set it up so your email is being forwarded to a personal email account which you actually read.

Cell Phones

Cell phone calculators or other devices with internet capabilities are not allowed on quizzes and tests.

Attendance

Attendance is not mandatory but strongly recommended. Only exceptional students can learn advanced mathematics while skipping many lectures.

You are expected to study quite a bit outside of class:

Reviewing the material, doing the homework, preparing for the next class, and preparing for the tests and the final exam. If you want to do well in this class, plan to spend **at least eight hours per week** on this.

Some Important Dates

Date	Event
Friday, February 10 (5 pm)	Last day to drop without a W on the transcript; also last day to change the grading option to audit
Monday, February 20	Presidents Day (no classes)
Friday, February 24 (tentative)	**Test 1**
March 20-24	Spring Break (no classes)
Monday, April 3 (5 pm)	Last day to drop without a petition (and without a WP or WF on the transcript)
Tuesday, April 11 (tentative)	**Test 2**
Friday, May 5 (5 pm)	Last day of classes, last day for petitions to drop, and last day to change the grading option from traditional to CR/NCR grading
Friday, May 12,10:10 am -12:10 pm	**Final Exam**

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you have a disability that adversely affects 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.

Student Conduct Code

All students need to be familiar with the Student Conduct Code. You can find it in the "A to Z" index on the UM home page.