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M 273.01: Multivariable Calculus

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M273 Multivariable Calculus - Fall 2021

Instructor:

Instructor: Eric Chesebro

Office: 308 Mathematical Sciences

Email: eric.chesebro@mso.umt.edu

Phone: x2687

Office hours: Wednesdays 10-11 and Fridays 1-2. Also by appointment. See also

www.umt.edu/people/chesebro.

Moodle

This site will contain all information on this sheet plus more. Homework assignments and other information pertinent to this course (such as office hours and tentative schedule) will be posted at this web site.

Learning Outcomes

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

Text

We will use the open-source textbook [Calculus Volume 3](#) from Openstax.

Graded work

Exams

We will have three 50 minute in-class midterm exams and a cumulative final exam. Midterms are tentatively scheduled for the 3 Fridays 9-24, 10-22, and 11-19. If you have a legitimate schedule conflict with an exam let me know as early as possible. The final exam will be given according to the [Registrar's schedule](#). By enrolling in this course you agree that you will be present for the final exam at this time.

Weekly Homework

Written and online homework will motivate weekly quizzes. Written homework will not be collected and online homework will be submitted through the WebWork system. To access WebWork, follow the link:

https://lennes.math.umt.edu/webwork2/273-Multivar-Calculus_Chesebro_2021F/

As username use your last name (lowercase); your initial password is the last 6 digits of your student ID (with no dashes). Please change your password after logging in the first time by clicking "Password/Email" from WebWork's Main Menu.

Working hard on the homework is how you will succeed in this course, so please take the homework seriously. It is okay to work together with classmates on homework assignments, but you must write up your own solutions in your own words.

Quizzes

Weekly quizzes are based on assigned homework. Quizzes are given at the start of class, so please be on time. There will be no make-ups for missed quizzes. The lowest two scores will be dropped.

Calculators

You may use your favorite brand/model on homework and WebWork but no electronic devices will be allowed during quizzes nor exams. In the classroom I may use an online graphing calculator such as [desmos](#).

Grading

- Online homework: 10%.
- Quizzes: 20%.
- Midterms: 45%
- Comprehensive Final: 25%

\geq 93%	90%	87%	83%	80%	75%	70%	65%	62%	58%	55%	$<$ 55%
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Guidelines and policies

Covid-19

The provosts office provides the following guidance (posted August 27, 2021).

- Mask use is required within the classroom or laboratory.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress.
- UM recommends students get the COVID-19 vaccine. Please direct your questions or concerns about vaccines to Curry Health Center.
- Where social distancing (maintaining consistent 6 feet between individuals) is not possible, specific seating arrangements will be used to support contact tracing efforts.
- Class attendance and seating will be recorded to support contact tracing efforts.
- Drinking liquids and eating food is discouraged within the classroom.

Please be advised that the guidance provided here may change from week to week. It will change according to guidance from the Missoula City-County Health Department (MCCHD) and CDC. Please visit the [UM Coronavirus website](#) for updated information. For the official guidance on instruction, please visit the [Deliver Quality Instruction](#) portion of the [COVID Operations Plan for 2021](#).

University dates and deadlines

You should be aware of the important dates and deadlines posted by the [Registrar's Office](#).

Academic honesty

I take academic honesty very seriously and I will act on any transgressions that I notice. Misconduct is subject to an academic penalty in this course and/or a disciplinary sanction by the university. We all know that a record of academic misconduct is a very bad thing to have documented in your academic history. All students should be familiar with the Student Conduct Code posted at [Community Standards](#).

Disability modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.