# Mathematics 273

# MULTIVARIABLE CALCULUS

Spring 2016
MTW F 9:10 a.m.-10:00 a.m.  MATH 311

**Instructor:** Dan Johnston  **Office:** 012 Math
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**Office Hours:** Tuesday 10:00 am - 11:30 am and Thursday 1:00 pm - 2:30 pm

**Textbook:** *Multivariable Calculus*, edition 10e, by Ron Larson and Bruce Edwards.

**Calculator:** Calculators will generally NOT be allowed on quizzes and exams.

**Learning Outcomes:**
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 curvature, 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 curl and divergence of vector fields;
11. Explain surface integrals, Stokes Theorem, and the Divergence Theorem.

**Homework:** Regular assignments will be made, but generally not collected. Homework Quizzes will be given covering this material (generally once a week). Each quiz will be announced in advance and will count 20 points. The lowest two quiz scores will not count.

**Exams:** There will be three 50 minute exams, each of which will be 100 points. The final exam will be 100 points, but counted twice. Thus there are five exam scores, each of which will be 100 points. Only the best four scores will count for a total of 400 points.

The final exam is a comprehensive exam and is scheduled

**Wednesday, May 11, 10:10 am-12:10 pm.**
**Do not miss the final exam**

**Grading:** Grades for the course will be as follows:
A = $(\infty , 93]$, A- = $(93 , 90]$, B+ = $(90 , 87]$, B = $(87 , 83]$, B- = $(83 , 80]$, C+ = $(80 , 77]$,
C = $(77 , 73]$, C- = $(73 , 70]$, D+ = $(70 , 65]$, D = $(65 , 60]$, D- = $(60 , 55]$, E = $(55 , 0]$

**Attendance:** You are expected to attend class regularly. **You are responsible for all the material presented and all announcements made on the days you are absent or you are late.**

**Accommodations:** The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting 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. All students need to be familiar with the Student Conduct Code. The Code is available for review online at `http://life.umt.edu/vpsa/policies/student_conduct.php`.