

MTH 254H

Honors Multivariable Calculus

Syllabus

Professor: Keith Promislow, D212 Wells Hall, 432-7135, kpromisl@math.msu.edu

Web Page: www.math.msu.edu/~kpromislow/math254H.html

Office Hours: T 3:00-4:00pm, W 3:00-5:00pm, or by appt.

UTA: Jonathon Jonker, jonkerjo@msu.edu

Text: *Calculus: A Complete Course*, (7th ed.) Robert Adams and Christopher Essex.

- CH 10** Vectors and Coordinate Geometry in \mathbb{R}^3 – 4 Lectures
10.1 - 10.7 Lengths, vectors, dot and cross products, projections. Planes and quadratic surfaces. Cylindrical and spherical coordinates. Linear Algebra.
- CH 11** Vector Functions and Curves – 5 Lectures
11.1 - 11.6 Derivatives and applications. Parameterizations of surfaces. Curvature and Torsion
- CH 12** Partial Derivatives– 9 Lectures
12.1 - 12.9 Limits and partial derivatives, Chain rule, Differentiability, Gradients and directional derivatives, Implicit function theorem, Taylor’s series.
- CH 13** Applications of Partial Derivatives– 5 Lectures
13.1 - 13.6 Critical points and extreme values, Lagrange multipliers, parametric integrals, Newton’s method.
- CH 14** Multiple Integration – 7 Lectures
14.1 - 14.7 Double integrals, Improper integrals and the mean-value theorem, polar coordinates, volume integrals and the change of coordinates.
- CH 15** Vector Fields – 6 Lectures
15.1 - 15.6 Vector fields, line integrals, surface integrals, flux
- CH 16** Vector Calculus – 6 Lectures
16.1 - 16.6 Gradient, divergence, and curl in \mathbb{R}^3 . Green’s theorem, divergence theorem, and Stoke’s theorem. Applications to Maxwell’s equations.

Mathematics Learning Center

Location: First floor, A wing, Wells Hall
Starting Date: Jan 14, 2013
Hours: MTW 11:40am-4pm and 6:20pm-8:40pm
H 6:20pm-8:40pm

Important Dates

Monday Jan 20: Martin Luther King day, class canceled
Friday Jan 31: Last day to drop and receive refund
Wednesday Feb. 26: LAST DAY TO DROP with no grade reported
March 3-7: Spring Break, class canceled
Monday April 28: FINAL EXAM 10:00am-noon

Technology

A calculator may be useful on the homework, however one will not be needed nor permitted during the exams. No computer experience is needed for this course.

Grading

3 Hour Exams: 100 points each (Tentative dates: Jan 25, Feb 15, Mar 15). Your lowest hour exam percentage will be replaced with your final exam percentage if doing so raises your grade. *There are NO make-up exams*, a missed exam, for any reason, will be counted as your lowest.

Homework: 100 points. This will be “spot-graded” (just a few problems from each week’s assignment) and returned. Your lowest four homeworks will be dropped. Homework is due in class on Friday. No late homework is accepted. You are encouraged to work in groups, but must turn in homework in your own handwriting.

Final Exam: 200 points. Wednesday May 1, 12:45-2:45pm. The university does not permit early final exams for any reason. The final is cumulative. Math 254H has its own final written by the professor. No student should miss the final.

Your final grade will be determined by your total points, the point cut-offs for each grade may be lowered, if the situation warrants, but they will not be raised.

Points	Grade	Points	Grade
541-600	4.0	421-450	2.0
511-540	3.5	391-420	1.5
481-510	3.0	361-390	1.0
451-480	2.5	0-360	0.0