
MATH 200 Multivariable Calculus (Fall 2017)

TEXTBOOK

Our primary reference for the course will be the online textbook at <http://www.apexcalculus.com> (see the common course site for this and additional references). Our reference and use of these free online textbooks will be in accordance with the creative commons license at <http://creativecommons.org/licenses/by-nc-sa/3.0/>. In addition to these, any standard textbook in multivariable calculus will also serve as a reference for most of the topics in this course. This includes the textbook by Stewart, used for this course in recent past years.

GRADING SCHEME

weekly webwork assignments (worth 10 % of overall grade)

5 in class quizzes (worth 15% of overall grade)

1 midterm exam (worth 25% of overall grade)

1 final exam (worth 50% of overall grade)

OUTLINE

The following is an outline of the topics to be covered in the course. The section number below correspond to the primary textbook. Look at the common course site for additional information, and also suggested problems from the textbook and previous final exams.

PART I: 3-DIMENSIONAL GEOMETRY (10.1-10.6)

Introduction, three dimensional coordinate systems, vectors, Dot product, cross product, equations of lines and planes, cylinders and quadric surfaces

PART II: DIFFERENTIATION OF MULTIVARIABLE FUNCTIONS (12.1-12.8 & 16.8 from secondary text # 1)

Functions of several variables, limits and continuity, Partial derivatives, Tangent planes and linear approximations, chain rule, directional derivatives and gradient vector, Maximum and minimum values, Lagrange multipliers

PART III: INTEGRATION OF MULTIVARIABLE FUNCTIONS (13.1-13.6 & 14.1 from secondary text # 2)

double integrals over rectangles, Iterated integrals, double integrals over general regions, Double integrals in polar coordinates, applications of double integrals, triple integral, Triple integrals in cylindrical and spherical coordinates