

MA 213 : CALCULUS 3 --- SYLLABUS FALL, 2003

Text: James Stewart: CALCULUS, 3rd Edition

This course is intended to be an introduction to the calculus of several real variables. It is in this context that the laws of nature find their most natural expression. Applications abound in physics, engineering and geometry, as well as in many other areas of current interest. The principal goal, therefore, is for the student to develop an understanding and facility with the language in which these laws and applications are most commonly expressed; that is, with the ideas and methods of the calculus of

1. vector valued functions of one real variable, and
2. real valued functions of a vector.

The following topics from the text should be covered:

CHAPT. 11: Three-Dimensional Analytic Geometry and Vectors

Note: parametric equations can be considered to be a special case of topic 1 above and will be needed later in connection with the notion of polar coordinates.

CHAPT. 12: Partial Derivatives

CHAPT. 13: Multiple Integrals

CHAPT. 14: Vector Calculus (Sections 14.1-14.4)

Note: This is the most important chapter for applications in physics. At the very least the course should include a brief discussion of line integrals and Green's theorem.