

Math 32B: General Course Outline

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Catalog Description

32B. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Requisite: courses 31B & 32A with a grade of C- or better. Introduction to integral calculus of several variables, line and surface integrals. P/NP or letter grading.

Textbook

J. Stewart, *Multivariable Calculus*, 7th Ed., Brooks/Cole/Cengage.

Comment

The following schedule, with textbook sections and topics, is based on 26 lectures. The remaining classroom meetings are for leeway, reviews, and two midterm exams. These are scheduled by the individual instructor.

Schedule of Lectures

Lecture	Sections	Topics
1	15.1	Double Integrals over Rectangles
2	15.2	Iterated Integrals
3	15.3	Double Integrals over General Regions
4	10.3,4	Polar Coordinates
5	15.4	Double Integrals in Polar Coordinates
6	15.5	Applications of Double Integrals
7	15.7	Triple Integrals
8	15.8	Triple Integrals in Cylindrical Coordinates
9	15.9	Triple Integrals in Spherical Coordinates
10	15.10	Change of Variables in Multiple Integrals
11	15.10	Change of Variables in Multiple Integrals
12	16.1	Vector Fields
13	16.2	Line Integrals
14	16.2	Line Integrals
15	16.3	The Fundamental Theorem for Line Integrals
16	16.3	The Fundamental Theorem for Line Integrals
17	16.4	Green's Theorem
18	16.5	Curl and Divergence
19	16.5	Curl and Divergence
20	16.6, 15.6	Parametric Surfaces and Their Areas
21	16.6	Parametric Surfaces and Their Areas
22	16.7	Surface Integrals
23	16.8	Stokes' Theorem

23	16.8	Stokes' Theorem
24	16.8	Stokes' Theorem
25	16.9	The Divergence Theorem
26	16.9	The Divergence Theorem

Comments

- 1) The section on polar coordinates should be used to emphasize areas inside polar curves, as a preview of polar double integrals and cylindrical coordinates, and not arcane polar coordinate curves.
- 2) The sections on Green's Theorem, Stokes' Theorem, and the Divergence Theorem are extremely important. Time must be left to cover these sections in detail.

Outline update: J. Ralston, 8/08

For more information, please contact Student Services, ugrad@math.ucla.edu.