

Detailed Syllabus, Math 116

Textbook: Tom Apostol, Calculus, volumes I and II, second edition.

Topics covered:

1. Foundations – theory and review (selections from volume I): 10 hours total. Break-down:
 - a) real numbers, order completeness, complex numbers. Introduction, Part 3; Chapter 9.
 - b) integration. Chapter 1.
 - c) limits and continuity. Chapter 3.
 - d) differentiation. Chapter 4.
 - e) relation between integration and differentiation. Chapter 5 (first part).
2. Vector algebra. Volume I, Chapter 12.
3. Applications of vector algebra to analytic geometry. Volume I, Chapter 13.
4. Calculus of vector-valued functions. Volume I, Chapter 14.
5. Calculus of scalar and vector fields. Volume II, Chapter 8.
6. Applications of differential calculus. Volume II, Chapter 9 (second half).
7. Line integrals. Volume II, Chapter 10.
8. Multiple integrals. Volume II, Chapter 11.
9. Surface integrals. Volume II, Chapter 12.