

Pure Mathematics 445

Analysis II

Euclidean space, basic topology; differentiation of transformations, Implicit Function Theorem; multiple integration, integrals over curves and surfaces; differential forms, Stokes' Theorem.

Course Hours: H(3-0)

Prerequisite(s): [Mathematics 353](#) or [381](#); and [Mathematics 311](#); and [Pure Mathematics 435](#) or [455](#), or consent of the Division.

Antirequisite(s): Not open to students with credit in [Pure Mathematics 545](#).

Possible Texts:

R.C. Buck, *Advanced Calculus*, 3ed, McGraw-Hill, 1978.

R.G. Bartle, *The Elements of Real Analysis*, 2ed, John Wiley & Sons, 1976.

K. Hoffman, *Analysis in Euclidean Space*, Prentice-Hall, 1975.

S. Douglas, *Introduction to Mathematical Analysis*, Addison-Wesley, 1996.

Syllabus

<u>Topics</u>	<u>Number of Hours</u>
Series: convergence tests, absolute convergence, conditional convergence, rearrangements, Cauchy product.	6
Sequences and series of functions: pointwise and uniform convergence, Weierstrass M-test, power series.	6
Euclidean spaces: Basic topology, connectedness, compactness; metric spaces.	9
Functions of several variables: limits and continuity.	3
Derivative: linear transformations, differentiability, inverse function theorem, implicit function theorem.	6
Integral: Riemann integral of several variables, Fubini's theorem.	6
TOTAL HOURS	<hr style="width: 100%; border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> 36

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97.02.06 Effective Fall 1997

BB:jml

Calendar prereq, coreq and note changed Fall 2009