



APPLIED MATHEMATICS 433 "MATHEMATICAL METHODS IN PHYSICS "

Calendar Description: H(3-1T)

Complex analysis and residue integrals. Fourier analysis. Laplace transforms. Vector spaces. Eigenvalues and eigenvectors. Extensive physical applications.

Prerequisite: One of Applied Mathematics 307 or 311; AND One of Applied Mathematics 309 or Mathematics 353 or 381 or 331; AND Mathematics 221 or Mathematics 211.

Syllabus

<u>Topics</u>	<u>Number of Hours</u>
Matrices: eigenvalue problem, diagonalization, similarity, Cayley-Hamilton, change of basis vectors, rotations, orthogonal and unitary matrices	5
Normal Modes of Oscillating systems	2
Fourier Series and Fourier Integrals, boundary value problems for physical fields	7
Green's Functions	2
Linear Vector Spaces, Linear Operators, Inner product	4
Complex Analysis, Laurent Series, Residues, Cauchy theorem, Evaluation of real integrals by methods of complex analysis	12
Laplace Transforms and applications	4
TOTAL HOURS	36

* * * * *