

MATHEMATICS 411 "LINEAR SPACES WITH APPLICATIONS"

Calendar Description: H(3-0)

Canonical forms Inner product spaces, invariant subspaces and Spectral theory.
Quadratic forms.

Prerequisite: Mathematics 311 and one of Mathematics 353, Applied Mathematics 309 or Mathematics 331.

Note: Mathematics 411 is not open to students with credit in Mathematics 313.

Syllabus

<u>Topics</u>	<u>Number of Hours</u>
Fields, algebras, vector spaces	3
Elementary canonical forms: invariant subspaces, simultaneous diagonalization, direct-sum decompositions, invariant direct sums.	8
Rational and Jordan forms.	6
Inner product spaces, adjoint, Hermitian, unitary and normal operators.	8
Operators on inner product spaces, form, the Spectral theorem.	6
Bilinear and quadratic forms.	5
TOTAL HOURS	36
