

Prof. Michael Shub

MATH 31103

Syllabus – Honors Linear Algebra Fall 2017

Textbook - Lang,Serge, Linear Algebra (3rd edition) Springer

Syllabus

1. Fields and Vector Spaces: Linear dependence and independence, bases, dimension.
2. Matrices and linear mappings: Kernel and image, the linear map associated to a matrix and vice versa
3. Real vector spaces and orthogonality: Quadratic forms
4. Determinants: Cramer's rule
5. Eigenvalues and eigenvectors: General, Symmetric and Hermitian matrices
6. Matrix polynomials and canonical forms.
7. If time permits: Multilinear algebra and construction of the Reals

Outcome A knowledge of linear algebra