

Topics for the Linear Algebra Comprehensive Exam

Elementary linear Algebra of Euclidean Space and matrices.
Vector spaces, bases, linear transformations.
Determinants, eigenvalues, the characteristic polynomial.
Cayley-Hamilton theorem. Diagonalization.
Inner products, vector and matrix norms, orthogonal projections.
Adjoint, hermitian, unitary and normal transformations.
Similarity, Jordan canonical form and applications.

Suggested References

1. S. Friedberg, A. Insel, L. Spence: Linear Algebra
2. K. Hoffman, R. Kunze: Algebra
3. S. Axler: Linear Algebra Done Right
4. G. Strang: Linear Algebra and its Applications
5. R. Horn, C. Johnson: Matrix Analysis
6. H. Anton, C. Rorres: Elementary Linear Algebra