Math 113 – Linear Algebra and Matrix Theory

András Vasy, Autumn 2007: SYLLABUS, AS OF JUNE 26, 2007

September 25.	Introduction, groups, fields, vector spaces (Ch. 1)
September 27.	Subspaces, sums, direct sums (Ch. 1)
October 2.	Span, linear independence, bases (Ch. 2)
October 4.	Bases, dimension (Ch. 2)
October 9.	Linear maps (Ch. 3)
October 11.	Linear maps, matrices, invertibility (Ch. 3)
October 16.	Eigenvalues and eigenvectors (Ch. 5, Ch. 4)
October 18.	Midterm
October 23.	Diagonal matrices, existence of eigenvalues (Ch. 5)
October 25.	Eigenvalues and invariant subspaces for real vector spaces (Ch. 5)
October 30.	Generalized eigenvectors, the characteristic polynomial (Ch. 8)
November 1.	Generalized eigenspace decomposition (Ch. 8)
November 6.	Traces and determinants of operators; change of basis (Ch. 10)
November 8.	Inner product spaces, norms, orthonormal bases (Ch. 6)
November 13.	Orthogonal projections, minimization (Ch. 6)
November 15.	Linear functionals and adjoints (Ch. 6)
November 27.	Self-adjoint and normal operators (Ch. 7)
November 29.	Spectral theorem (Ch. 7)
December 4.	Determinant (Ch. 10)
December 6.	Determinant (Ch. 10), review