Math 174A – Topics in Analysis and Differential Equations with Applications

András Vasy, Winter 2006: SYLLABUS, AS OF DECEMBER 19, 2006

January 9.	Introduction; The derivative (Sec. 1.1)
January 11.	Fundamental existence theorem for ODEs (Sec. 1.2)
January 16.	Inverse and implicit function theorems (Sec. 1.3)
January 18.	Constant coefficient linear systems (Sec. 1.4)
January 23.	Variable coefficient systems of ODE (Sec. 1.5)
January 25.	Dependence of solutions on initial data and other parameters (Sec. 1.6)
January 30.	Flows and vector fields; Lie brackets (Sec. 1.7-1.8)
February 1.	Commuting flows; Frobenius' theorem (Sec. 1.9)
February 6.	Hamiltonian systems (Sec 1.10)
February 8.	Midterm
February 13.	Fourier series (Sec. 3.1)
February 15.	Fourier series (Sec. 3.1)
February 20.	Harmonic functions and holomorphic functions in the plane (Sec. 3.2)
February 22.	Harmonic functions and holomorphic functions in the plane (Sec. 3.2)
February 27.	The Fourier transform (Sec. 3.3)
March 1.	Distributions and tempered distributions (Sec. 3.4)
March 6.	Distributions and tempered distributions (Sec. 3.4)
March 8.	The classical evolution equations (Sec. 3.5)
March 13.	The method of images and Poisson's summation formula (Sec. 3.7)
March 15.	Review