

Math 205B – Real Analysis

András Vasy, Winter 2010-2011: PRELIMINARY SYLLABUS, AS OF
FEBRUARY 7, 2011

January 4.	Introduction and review; Ascoli's theorem (Ch. I)
January 6.	Ascoli's theorem (continued), Hilbert spaces (Sec. II.1)
January 11, 9:30am.	Riesz lemma (Sec. II.2)
January 11, 11am.	Orthonormal bases (Sec. II.3)
January 13.	Banach spaces and duals (Sec. III.1-III.2)
January 18.	No lecture
January 20.	Hahn-Banach theorem, operations on Banach spaces (Sec. III.3-III.4)
January 25, 9:30am.	Baire category theorem and consequences (Sec. III.5)
January 25, 11am.	Topological spaces (Sec. IV.1)
January 27.	Weak topologies on Banach spaces, compactness (Sec. IV.3, IV.5)
February 1.	Compactness, Stone-Weierstrass theorem (Sec. IV.3)
February 3.	Midterm
February 8, 9:30am.	Banach-Alaoglu theorem (Sec. IV.5), Tychonov's theorem (Royden's book)
February 8, 11am.	Riesz-Markov theorem (Sec. IV.4), locally convex spaces (Sec. V.1)
February 10.	Locally convex spaces (cont'd), Fréchet spaces (Sec V.1-2)
February 15.	Bounded operators, adjoints (Sec. VI.1-2) (Prof. Ryzhik)
February 17.	No lecture
February 22.	No lecture (instructor injury)
February 24.	Schwartz functions and tempered distributions (Sec. V.3)
March 1, 9:30am.	The spectrum (Sec. VI.3)
March 1, 11am.	The spectrum, continued, compact operators (Sec. VI. 3,5)
March 3.	Compact operators, continued (Sec. VI. 5)
March 8.	Compact operators, continued; the continuous functional calculus (Sec. VII.1-2)
March 10.	Continuous functional calculus, continued; outlook

Note: The schedule is still subject to change. The special time lectures, at 9:30am, meet in 383N unless otherwise noted. In case some of the possibly/likely lecture times can be covered by another instructor, the number of special time lectures will be correspondingly reduced.