

Math 171 – Fundamental Concepts of Analysis

András Vasy, Spring 2010-2011:

PRELIMINARY SYLLABUS, AS OF MARCH 28, 2011

Subject to change!!!

- March 29. Introduction; the real number system (Ch II:3-5)
- March 31. The real number system (Ch. II:6-7),
sequences of real numbers (Ch IV:10-11)
- April 5. Countable and uncountable sets (Ch III)
- April 7. Sequences of real numbers (Ch IV:12-18),
the Cauchy condition (Ch IV:19)
- April 12. \limsup and \liminf (Ch IV:20-21),
infinite series; non-negative series (Ch V:22-23)
- April 14. Non-negative series, alternating series,
absolute convergence (Ch V:24-26)
- April 19. Power series; rearrangement of series (Ch V:27-29)
- April 21. Double series (Ch V:29), Metric spaces (Ch VII:35-39)
- April 26. Metric spaces, continued (Ch VII:35-39)
- April 28. Continuous functions, relative metric (Ch VI:30-33, Ch VII:40-41)
- May 3. Compact metric spaces (Ch VII:42-43)
- May 5. Midterm
- May 10. Continuous functions on compact metric spaces (Ch VII:44, VI:34)
- May 12. Connected and complete spaces (Ch VII:45-46)
- May 17. Pointwise and uniform convergence (Ch X:60),
completions (Ch VII:46)
- May 19. Completions, continued (Ch VII:46),
differential calculus on the real line (Ch VIII)
- May 24. Differential calculus on the real line, continued (Ch VIII)
- May 26. Riemann integral (Ch IX:56, writing assignment),
integration and differentiation of sequences of functions (Ch X:61)
- May 31. Series of functions, power series (Ch X:62-63)

Most of the material in Ch I, Ch II, Ch III:8, Ch IV:10-17, Ch V, Ch VI:30-33 and Ch VIII will not be covered explicitly in lecture, but it will be assumed that you are already familiar with the material in these sections. You should carefully read these sections, and solve enough problems to convince yourself that you are on top of this material.