MATH 5102 (SPRING 2020)
ANALYSIS II − FUNCTIONS OF SEVERAL VARIABLES

Instructor: Robert Chang

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Office hours: 24/7 (just drop by 534 Nightingale Hall or email)

Lectures: TR 3:25–4:55 p.m. at 102 Kariotis Hall

Website: https://www.northeastern.edu/rchang/2020s5102

Textbook: *Real Analysis: Measure Theory, Integration, and Hilbert Spaces*
   by E. M. Stein and R. Shakarchi

Course content. The plan is to follow roughly chapters 1–6 of the textbook, covering the Lebesgue theory; some Hilbert space theory (with emphasis on L^2 and the Fourier transform); L^p spaces; and elements of abstract measure theory (time-permitting).

Homework. Weekly exercises are posted on the course website. Solutions must be typeset with LATEX and submitted electronically to the instructor's inbox.[1] A bare-bones `.tex` template can be found on the course website.

Examinations. Two bring-back exams will be administered during the semester. Students are given a problem sheet to prepare from, but they must complete their solutions in-class without the help of notes or texts.

Additional References. Reading the textbook (along with one other reference text) and attempting most of the end-of-chapter exercises are integral to mastery of the subject.

- G. B. Folland, *Real Analysis: Modern Techniques and Their Applications*, second edition, Pure and Applied Mathematics (New York), John Wiley & Sons, Inc., New York, 1999. MR1681462.
- H. L. Royden and P. M. Fitzpatrick, *Real Analysis*, fourth edition, Pretince Hall, Boston, 2010.[2]
- W. Rudin, *Real and Complex Analysis*, third edition, McGraw–Hill Book Co., New York, 1987. MR0924157.
- T. Tao, *An Introduction to Measure Theory*, Graduate Studies in Mathematics, 126, American Mathematical Society, Providence, RI, 2011. MR2827917.

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[1] Download the appropriate TeX distribution from the official page. Mac users will want MacTeX and Windows users will want MiKTeX. The former comes with the TeX frontend (used to edit and preview documents) TeXShop, and the latter with TeXworks. You may explore other TeX editors with the help of a search engine. (I like TeXnicCenter on Windows.)

[2] See errata.

Academic Integrity and Honesty. Academic dishonesty is not tolerated and results in a failing grade. All incidents are reported to the Office of Student Conduct and Conflict Resolution (OSCCR). See here for detailed policies.

College of Science Policies. See here for the current College of Science Academic Course Policies.

Final Exam Conflicts. Only two finals at the same time or three in one day constitute a University recognized legitimate reason to be excused from taking the final at the scheduled time. Students with such a conflict should complete a Final Exam Conflict Form, available on the Registrar's website.

Reporting Concerns. If you have a concern about the course or the instructor that is not or cannot be resolved by speaking with the instructor, the next step is to speak with the Course Coordinator. If the Course Coordinator does not settle the matter, please contact the Teaching Director, Professor Robert McOwen, 445 LA, 617-373-5678, r.mcowen@northeastern.edu.

Students with Disabilities. Students who have disabilities who wish to receive academic services and accommodations should follow the standard Disabilities Resource Center (DRC) procedures.

Title IX. The University strictly prohibits sex or gender discrimination in all university programs and activities. Information on how to report an incident of such discrimination (which includes sexual harassment and sexual assault) is located here.

TRACE Participation. Every student is expected to complete the Teacher Rating and Course Evaluation (TRACE) survey at the end of the semester.