

MATH 5102 (SPRING 2021)
ANALYSIS II – FUNCTIONS OF SEVERAL VARIABLES

Instructor: Robert Chang
Email: hs.chang@northeastern.edu
Lectures: MW 2:25–3:55 p.m. at 118 Hastings and via Zoom
Office hours: MWR 1:00–2:00 p.m. via Zoom

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

Course content. Key elements in Chapters 1–6 of the textbook – such as the Lebesgue theory, L^2 and the Fourier transform, and abstract measure theory – will be studied. Time permitting, L^p spaces, probability theory, or other topics of interest can be explored.

Homework. Suggested exercises are posted on Canvas. Solutions may be submitted electronically to the instructor’s inbox.¹ A bare-bones `.tex` template can be found on the course website.

Examinations. One midterm and one final exam will be administered.

Additional References.

- 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. ([Errata](#).)
- H. L. Royden and P. M. Fitzpatrick, *Real Analysis*, fourth edition, Prentice Hall, Boston, 2010. ([Errata](#).)
- W. Rudin, *Real and Complex Analysis*, third edition, McGraw–Hill Book Co., New York, 1987.
- T. Tao, *An Introduction to Measure Theory*, Graduate Studies in Mathematics, 126, American Mathematical Society, Providence, RI, 2011. ([PDF](#), [errata](#).)

¹Typesetting mathematics is an essential skill. Start by downloading the appropriate [TeX](#) distribution – [MacTeX](#) for Mac or [MiKTeX](#) for Windows. The former comes with the [TeX](#) frontend (used to edit and preview documents) called [TeXShop](#); the latter with [TeXworks](#). You may explore fancier [TeX](#) editors with additional features with the help of a search engine. (I use [TeXnicCenter](#) on Windows.)

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 Alex Martsinkovsky (a.martsinkovsky@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.