

Analysis in \mathbb{R}^n

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Schedule: MW 10:45am - 12pm in the lecture hall.
The class of Monday, June 19th, will be moved to Friday, June 23rd.

Textbook:

- *Principles of Mathematical Analysis*, Third Edition, Walter Rudin, Chapters 2, 3, 4, 6, 7.
- Instructor's lecture notes (uploaded to Canvas).

Office hours:

Beniada Shabani: W 1pm-2:30pm.
David Bowman: M 1pm-2:30pm.

Problem sessions: F 1:30pm-2:30pm.

Course description:

The first part of Analysis in \mathbb{R}^n provides a rigorous treatment of the topology of metric spaces, along with the notions of compactness, connectedness, completeness, convergence of sequences, and a number of big theorems, such as Heine-Borel, Bolzano-Weierstrass, etc. The second part focuses on functions in metric spaces, their continuity, integration in \mathbb{R}^n , sequences of functions, and includes theorems such as Banach Fixed point theorem, Fundamental Theorem of Calculus, Fubini's theorem, Stokes' theorem in low dimensions, Stone-Weierstrass, Arzelà-Ascoli, etc.

Homework:

There will be weekly homeworks posted on Canvas, and the solutions should be uploaded as a pdf by Wednesday, 11:59pm. Typing is not required, as long as the scanned papers are legible. You are encouraged to work collaboratively on the assignments but they *should be written up independently*. You can get *one 48 hour extension* in one assignment - no questions asked. If you wish to use this option, please email the instructor.