MAT457HF | MAT1000HF
REAL ANALYSIS I

Course information

Lectures	Mon 11:00 AM – 12:00 PM BA6183
	Wed 10:00 AM – 12:00 PM BA6183
Website	`www.math.utoronto.ca/jacopods/mat1000.html`
Textbook	Gerald B. Folland
	Real Analysis: Modern Techniques and Their Applications
	Second edition [first edition is acceptable]
Instructor	Jacopo De Simoi
Office	PG 201B
e-mail	`jacopods@math.utoronto.ca`
Office Hours	Mon 2:00 PM – 3:00 PM
	Wed 12:00 PM – 1:00 PM
TA	Malors Emilio Espinosa Lara
e-mail	`srolam.espinosalara@mail.utoronto.ca`
Office Hours	Fri 10:00 AM – 12:00 PM

Topics

MEASURE THEORY: Lebesgue measure and integration, convergence theorems, Fubini's theorem, Lebesgue differentiation theorem, abstract measures, Caratheodory theorem, Radon-Nikodym theorem.

FUNCTIONAL ANALYSIS: Hilbert spaces, orthonormal bases, Riesz representation theorem, compact operators, L^p-spaces, Holder and Minkowski inequalities.

Additional references

Elias Stein and Rami Shakarchi: Measure Theory, Integration, and Hilbert Spaces

Eliott H. Lieb and Michael Loss: Analysis (either edition)

H.L. Royden: Real Analysis.

A.N. Kolmogorov and S.V. Fomin: Introductory Real Analysis.

M. Giaquinta and G. Modica: Mathematical analysis: Foundations and advanced techniques for functions of several variables

Marking scheme

Homework — 30%

There will be 11 hand-in Homework assignments, which you must submit by the due date. These assignments will be given throughout the course which will cover the recent material discussed in lectures. These are designed to assist students in understanding the course material. They also serve as good practice for term tests, and the final exam. You are expected to work on the questions assigned, and if you cannot solve a problem, you should ask your TA and/or the instructor for help. Your Homework mark will be determined by the taking the average of the best 10 assignments. Homework will be collected during the lectures: homework handed in later than 11:20AM for Monday lectures and 10:20AM for Wednesday lectures will not be accepted

Term Test — 30%

There will be *one* two-hour term test on Wednesday Nov 1 from 10:00AM to 12:00PM in room EX200. More details about the term test will be given later. You must bring your student card to each term test. No aids will be allowed.

Final exam — 40%

The final exam will be a three-hour exam. No aids will be allowed.

Penalties for lateness

If you cannot show up for a test because of illness or any other special reason, you MUST submit the official UofT medical certificate, which can be downloaded from the course website.

There will be no make-up tests. The marking scheme will be adjusted appropriately for students who have missed a test because of illness or any other (approved) legitimate reason.

Code of Behaviour / Plagiarism

Students should become familiar with and are expected to adhere to the Code of Behaviour on Academic Matters which can be found at:
http://www.governingcouncil.utoronto.ca/policies/behaveac.htm