



The Hebrew University of Jerusalem

Syllabus

MEASURE THEORY - 80517

Last update 25-10-2017

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: mathematics

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof Raz Kupferman

Coordinator Email: razk_at_math.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

Prof Raz Kupferman
Mr. Levner Hagay

Course/Module description:

Measurable sets and functions, measures, integrals, fundamental limit theorems for integrals, the Riesz representation theorem, regularity of measures, Lebesgue measure, Lusin's theorem, spaces of integrable functions and fundamental inequalities, complex measures, the Radon-Nikodym and Lebesgue decomposition theorems, measure differentiation, product spaces and the Fubini theorem

Course/Module aims:

See learning outcomes

Learning outcomes - On successful completion of this module, students should be able to:

Ability to prove and apply the theorems presented in the course.

Ability to apply correctly the mathematical methodology in the context of the course.

Acquiring the fundamentals as well as basic familiarity with the field which will assist in the understanding of advanced subjects.

Ability to understand and explain the subjects taught in the course.

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Lecture + exercise

Course/Module Content:

Measurable sets and functions, measures, integrals, fundamental limit theorems for integrals, the Riesz representation theorem, regularity of measures, Lebesgue measure, Lusin's theorem, spaces of integrable functions and fundamental inequalities, complex measures, the Radon-Nikodym and Lebesgue decomposition theorems, measure differentiation, product spaces and the Fubini theorem

Required Reading:

none

Additional Reading Material:

W. Rudin, *Real and Complex Analysis*, 3rd edition, McGraw-Hill 1986

Course/Module evaluation:

End of year written/oral examination 90 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 10 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

none