The Hebrew University of Jerusalem

Syllabus

FORCING AND INDEPENDENCE IN SET THEORY - 80579

Last update 13-03-2025

<u>HU Credits:</u> 2

<u>Degree/Cycle:</u> 2nd degree (Master)

<u>Responsible Department:</u> Mathematics

<u>Academic year:</u> 0

<u>Semester:</u> 2nd Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> E. Safra

<u>Course/Module Coordinator:</u> Yair Hayut

<u>Coordinator Email:</u> yair.hayut@math.huji.ac.il

<u>Coordinator Office Hours:</u> set an appointment

<u>Teaching Staff:</u>

Prof. Hayut Yair

<u>*Course/Module description:*</u>
  In this course we shall introduce the method of forcing for constructing models of ZFC. We shall prove that the method does produce models of ZFC. Using it, we shall prove the independence of the Generalized Continuum Hypothesis. Iteration of forcing will be introduced in order to prove the consistency of Martin's axiom.

<u>*Course/Module aims:*</u>

<u>*Learning outcomes - On successful completion of this module, students should be able to:*</u>
  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 understanding and explain the subjects taught in the course.

<u>*Attendance requirements(%):*</u>

Teaching arrangement and method of instruction:

<u>*Course/Module Content:*</u>
  In this course we shall introduce the method of forcing for constructing models of ZFC. We shall prove that the method does produce models of ZFC. Using it, we shall prove the independence of the Generalized Continuum Hypothesis. Iteration of forcing will be introduced in order to prove the consistency of Martin's axiom.

<u>*Required Reading:*</u>
 none

 <u>*Additional Reading Material:*</u>

Grading Scheme:
  Written / Oral / Practical Exam 50 %
  Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 50 %

Additional information: