



The Hebrew University of Jerusalem

Syllabus

TOPOLOGICAL DYNAMICS - 80625

Last update 06-01-2022

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English and Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof Benjamin Weiss

Coordinator Email: weiss@math.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Prof Michael Hochman

Course/Module description:

The course covers basic definitions and theorems in topological dynamics.

Among the topics will be:

1. Special classes like -
Kronecker systems, distal flows and symbolic shifts.
2. topological entropy.
3. some applications to number theory and combinatorics.

Course/Module aims:

To encounter basic definitions and examples from topological dynamics, special classes of dynamical systems and the relations between them, and applications outside of dynamics.

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

The ability to understand more advanced material in topological dynamics.

Attendance requirements(%):

60

Teaching arrangement and method of instruction: lectures

Course/Module Content:

Basic definitions and theorems.

Recurrence and its applications: van der Waerden's theorem

Discrete spectrum and classification of isometries

Further topics

Rotation numbers and Poincaré's theorem

Furstenberg's theorem on 2- and 3-invariant sets

Expansion in non-integer bases and beta shifts

Required Reading:

There is no required reading.

Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 100 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information: