



## *Syllabus*

# **TOPOLOGICAL DYNAMICS - 80625**

*Last update 06-01-2022*

HU Credits: 2

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](mailto: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.*

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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:

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*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:*