



# *The Hebrew University of Jerusalem*

## *Syllabus*

### **TOPOLOGICAL DYNAMICS - 80625**

*Last update 14-04-2020*

*HU Credits:* 2

*Degree/Cycle:* 2nd degree (Master)

*Responsible Department:* Mathematics

*Academic year:* 2020

*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:*

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Prof Benjamin Weiss

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.

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

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:

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*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:*