

The Hebrew University of Jerusalem

Syllabus

Seminar in analysis: Irrational numbers - 80808

Last update 12-08-2020

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dan Mangoubi

Coordinator Email: dan.mangoubi@mail.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

Prof Dan Mangoubi

Course/Module description:

We follow the book *Irrational numbers* by I. Niven:

- 1) e is transcendental (Hermite, 1873)
- 2) π is transcendental (Lindemann, 1882)
- 3) Liouville numbers
- 4) Continued fractions
- 5) Hilbert's seventh problem and Gelfond-Schneider's Theorem (1934) If a, b are algebraic then a^b is transcendental (unless $a=0$ or 1).

Course/Module aims:

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

Acquaintance with ideas of Diophantine approximation and Transcendental Number Theory.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Lectures by students

Course/Module Content:

See course description.

Required Reading:

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Additional Reading Material:

Irrational Numbers, Niven.
Transcendental Numbers, Siegel.
The Theory of Numbers, Hardy and Wright.

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 80 %

Participation in Tutorials 20 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information: