האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

ADVANCED TOPICS IN NUMBER THEORY - 80775

Last update 03-09-2023

HU Credits: 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 2024

Semester: 1st Semester

Teaching Languages: English

Campus: E. Safra

Course/Module Coordinator: Prof Ari Shnidman

Coordinator Email: ariel.shnidman@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Prof Schneidman Ari

Course/Module description:

"*Mazur's theorem on elliptic curves*"

Abstract: The group of points on an elliptic curve y^2 &eq; x^3 + Ax + B over the field Q forms a finitely generated abelian group. In 1977, Mazur classified the torsion subgroups that can arise and in particular showed that the torsion subgroup has order at most 16. We will go through the proof of this result. The level of detail and background assumed will depend to some extent on the audience. If there is time at the end, we will discuss the Manin-Mumford conjecture (first proved by Raynaud) which concerns torsion points on higher genus curves

Prerequisites: it will be good to have at least some familiarity with algebraic number theory, algebraic geometry, elliptic curves/abelian varieties, and modular forms.

Course/Module aims:

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

None

Attendance requirements(%):

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Teaching arrangement and method of instruction: Lecture

Course/Module Content:

None

Required Reading:

None

Additional Reading Material:

Grading Scheme:

Active Participation / Team Assignment 100 %

Additional information: