



Syllabus

Elliptic Curves - 80627

Last update 08-09-2020

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Mathematics

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Ron Livne

Coordinator Email: Ron.Livne@mail.huji.ac.il

Coordinator Office Hours: Mondays 1-2pm

Teaching Staff:
Prof Ron Livne

Course/Module description:

In the course we discuss elliptic curves over the real and the complex numbers, and over number fields, in particular over the rational numbers. We will mainly look at their arithmetic properties and prove the Mordell-Weil theorem using Galois theory, and define the Selmer and the Shafarevich-Tate groups. Time permitting, we will discuss additional topics that would take into account the preference of the students.

Course/Module aims:

The goal will be to spark interest in the arithmetic of elliptic curves and some of the modern techniques in diophantine equations.

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

To continue the study of elliptic curves and their generalizations

Attendance requirements(%):

Teaching arrangement and method of instruction:

Course/Module Content:

See course description

Required Reading:

The course notes

Additional Reading Material:

The books by Silverman and Koblitz on elliptic curves

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %
Quizzes 0 %
Other 100 %
see below

Additional information:

1) We will assume familiarity with functions of complex variable (eg 80519) and with field theory (eg 80446) According to the number of students requiring a grade, it will be decided in the beginning of the course how it will be determined (exam or lecture).