האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

ALGEBRAIC NUMBER THEORY - 80756

Last update 05-10-2020

HU Credits: 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 0

Semester: 1st Semester

Teaching Languages: English and Hebrew

Campus: E. Safra

Course/Module Coordinator: Michael Temkin

Coordinator Email: michael.temkin@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Prof Michael Temkin

Course/Module description:
Introduction to the basic properties of algebraic numbers.

Course/Module aims:
Getting acquainted with the basic properties of the rings of integers in number fields, decomposition of prime ideals in extensions, cyclotomic fields, finiteness of the class number, finite generation of the group of units.

Learning outcomes - On successful completion of this module, students should be able to:
- to compute rings of integers in algebraic number fields of low degree
- to decompose an ideal to a product of primes
- to evaluate the ramification indices and inertial degrees of primes in extensions of low degree
- to compute units of number fields
- to prove simple properties of algebraic number fields.

Attendance requirements(%):

Teaching arrangement and method of instruction: Lecture

Course/Module Content:
Traces and norms, discriminants, integral ring extensions, Number fields, integer rings, Dedekind rings, ramification and inertia, cyclotomic fields, the geometric embedding, finiteness of the class group, the structure of the group of units.

Required Reading:
None

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: