



## *Syllabus*

### *Number theory for function fields - 80640*

*Last update 06-09-2020*

*HU Credits: 2*

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

*Responsible Department: Mathematics*

*Academic year: 0*

*Semester: 1st Semester*

*Teaching Languages: English*

*Campus: E. Safra*

*Course/Module Coordinator: Dr. Ari Shnidman*

*Coordinator Email: [ariel.shnidman@mail.huji.ac.il](mailto:ariel.shnidman@mail.huji.ac.il)*

*Coordinator Office Hours: By appointment.*

*Teaching Staff:*

*Dr. Schneidman Ari*

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Course/Module description:

The topic will be "Number theory over function fields". We will study rings such as  $F_p[t]$  and  $F_p(t)$  and their finite extensions, called "function fields". Many questions about the integers (distribution of prime numbers, ideal factorization, class groups etc.) have analogues in this setting, often more explicit and tractable.

Function fields have their own idiosyncrasies which make them interesting in their own right, especially their connection with algebraic geometry.

The course will be given in English.

(Disambiguation: this course will not have significant overlap with Ron Livne's course on elliptic curves.)

Course/Module aims:

Most lectures will be given by students. Students will choose which sub-topics to speak about. The level of the talks will depend on the particular student. All levels of students are welcome, as long as they are comfortable with Galois theory/field theory.

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

The ability to read books/papers in number theory and to present on the material to your peers.

Attendance requirements(%):

Teaching arrangement and method of instruction: Participation in Tutorials

Course/Module Content:

see above

Required Reading:

One reference is "Number theory in function fields" by Michael Rosen. The instructor will give additional references as necessary.

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Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 70 %

Participation in Tutorials 30 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

none