

The Hebrew University of Jerusalem

Syllabus

FUNDAMENTAL CONCEPTS IN ALGEBRAIC GEOMETRY 1 - 80989

Last update 09-09-2015

<u>HU Credits:</u> 6

Degree/Cycle: 2nd degree (Master)

Responsible Department: mathematics

<u>Academic year:</u> 0

Semester: 2nd Semester

Teaching Languages: Hebrew

<u>Campus:</u> E. Safra

Course/Module Coordinator: Yakov Varshavsky

Coordinator Email: vyakov@math.huji.ac.il

Coordinator Office Hours: by appointment

<u>Teaching Staff:</u> Prof Yakov Varshavsky Mr. Uri Brezner

<u>Course/Module description:</u> The course will be based on the book of Hartshorne. We will cover the following topics: affine varieties, quasi-projective varieties, morphisms, rational maps, Bezout theorem, curves. Sheaves, schemes, separated, proper and quasi-projective morphisms, divisors. Sheaf cohomology, Chech cohomology, Riemann-Roch theorem for curves.

<u>Course/Module aims:</u> Introduction to Algebraic geometry

Learning outcomes - On successful completion of this module, students should be <u>able to:</u> Familiarity with basic concepts on algebraic geometry.

Ability to prove theorems and algebraic geometry and understanding their applications.

Understanding the connection between geometry and algebra.

Building the foundations for further research in this field.

<u>Attendance requirements(%):</u> 0

Teaching arrangement and method of instruction: Lecture and Exercise

<u>Course/Module Content:</u> The course will be based on the book of Hartshorne. We will cover the following topics: affine varieties, quasi-projective varieties, morphisms, rational maps, Bezout theorem, curves. Sheaves, schemes, separated, proper and quasi-projective morphisms, divisors. Sheaf cohomology, Chech cohomology, Riemann-Roch theorem for curves.

<u>Required Reading:</u> None

<u>Additional Reading Material:</u> None

<u>Course/Module evaluation:</u> End of year written/oral examination 0 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 100 % Reports 0 % Research project 0 % Quizzes 0 % Other 0 %

<u>Additional information:</u> None