FSF3603 Commutative Algebra 2 7.5 credits

Kommutativ algebra 2

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FSF3603 valid from Spring 2012

Grading scale

Education cycle

Third cycle

Specific prerequisites

A Master degree including at least 30 university credits (hp) in in Mathematics (Calculus, Linear algebra, Differential equations).

Basic knowledge in abstract algebra equivalent courses SF2737 Commutative Algebra and Algebraic Geometry and SF2735 Homological Algebra and Algebraic Topology.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course, the student should have sufficient depth in the field to be able to continue research in commutative algebra and have a good background in commutative algebra for algebraic geometry.

Course contents

- Integral extensions
- Chain conditions: Artinian rings
- Valuation rings
- Completions
- Hilbert functions
- Dimension theory for local rings
- Regular sequences
- Some extra material which can vary depending on the lecturer's choice, e.g.
- The Koszul complex, Hilbert Syzygy theorem
- Cohen-Macaulay
- Descent

Disposition

Lectures and problem solving sessions.

Course literature

M.F. Atiyah and LG. Macdonald, Introduction to Commutative Algebra.

For the extra material: D. Eisenbud, Commutative Algebra with a View Toward Algebraic Geometry, t.ex.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Homework exercises in combination with an oral exanimation.

Other requirements for final grade

Accepted home assignments andoral presentation.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.