

Algebra II

MATH 702 - Winter 2017

Prerequisites: MATH 701.

Course objectives: This course will offer an introduction to (computational) commutative algebra and algebraic geometry. Topics covered will include:

- Gröbner bases
- affine varieties
- elimination theory
- irreducible and primary decomposition
- Nullstellensatz
- dimension theory

Lectures: Mon, Wed: 12:30 - 14:00, 312 Hamilton Hall (January 9 - April 5).

Instructor: Federico Galetto, 407 Hamilton Hall, galetttof@math.mcmaster.ca.

Office hours: Mon: 15:30 - 16:30, Wed: 11:00 - 12:00, or by appointment.

Course website: <http://math.galetto.org/math702/>

Textbook: We will follow primarily the first of the following textbooks, although the other ones could also prove useful.

- 1) B. Hassett, *Introduction to Algebraic Geometry*
- 2) D. Cox, J. Little, D. O'Shea, *Ideals, Varieties, and Algorithms*
- 3) V. Ene, J. Herzog, *Gröbner Bases in Commutative Algebra*

Attendance: Though attendance is not mandatory, I strongly encourage you to attend all lectures. Coming to class will ensure that you are aware of what topics we cover and in what level of detail.

Grading scheme: Your mark will be determined according to the following scheme.

Assignments: 75% || Final exam: 25%

Assignments: There will be five or six homework assignments, roughly every other week. The assignments will be available through the course website. Each homework problem is marked out of 5. You have a week after an assignment is returned to submit it again for a chance to improve your mark on any given problem up to 4 out of 5.

Exams: There will be one (take home) final exam. Further details will be communicated in class.

Academic integrity: You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at www.mcmaster.ca/academicintegrity.

The following illustrates only three forms of academic dishonesty:

- 1) Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- 2) Improper collaboration in group work.
- 3) Copying or using unauthorized aids in tests and examinations.

Accommodations: Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140, ext. 28652, or e-mail sas@mcmaster.ca. For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

Important message about course modifications: The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.