

M524 Computational Commutative Algebra – Fall 2016

Instructor information

Instructor: Kelly McKinnie, Associate Professor

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Office hours: TBD. See my webpage <http://www.math.umt.edu/mckinnie/> for an up-to-date calendar of office hours

Course description:

In this course we will study the foundational material of commutative algebra with an eye towards the applications of algebraic geometry and number theory. Another main feature of this course will be the computer. We will ask what kinds of questions in commutative algebra can a computer be helpful in solving. Homework will include problems done by both hand and the computer. Core topics will include: Gröbner bases, prime ideals, spectra of a ring, primary factorization, ring extensions, localization and dimension theory.

Textbooks:

I suggest you get one of the following 2 books:

- Cox, Little and O'Shea's Ideals, Varieties and Algorithms
- Kreuzer and Robbiano's Computational Commutative Algebra

I will pull from mainly from these two sources. I may post chapters that I would like you to read and/or use for homework exercises.

Course Calendar:

Dates	Topic
Sep 7	Last day to add via cyberbear
Sep 19	Last day to drop/change grading option via cyberbear
Oct 31	Deadline for students to drop/add a course, change sections, change grading option or change credit in a variable credit course. After this date, changes can be made only by petition.
Dec 12	Last class day and last day to petition to drop/add
Dec 20	Final exam period scheduled Tuesday, 8:00AM --- 10:00 AM in our classroom. We may change this.

Required assignments and tests:

Homework will be assigned and collected in class and on moodle. (80% of class grade)

Final projects will be assigned and oral presentations given the last week of class. (20% of class grade)

Attendance

Course guidelines and policies:

Student Conduct Code

All students need to be familiar with the Student Conduct Code. You can find it in the "A to Z Index" on the UM home page.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

Disability modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.