

PRACTICAL INFORMATION

Class hours: MWF 9:00–9:50 am
Class room: MA 108
Instructor: Lars Winther Christensen
Office: MA 251
Office hours: T 3–5 pm and R 2:30–3:30 pm, or by appointment
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Course homepage: www.math.ttu.edu/~lchrste/teaching5399081

COURSE DESCRIPTION

Commutative algebra with applications to algebraic geometry.

Prerequisites: We pick up where *Introduction to Commutative Algebra* (Math 5399, Spring 2008) ended. During the first class we will determine what material from that course we need to review.

Text: “Introduction to Commutative Algebra and Algebraic Geometry” by E. Kunz (Birkhäuser).

Expected learning outcomes:

By the end of the course, we can characterize the commutative local rings that correspond to smooth points on algebraic varieties.

We will introduce projective resolutions, regular sequences, Cohen-Macaulay modules and Cohen-Macaulay rings. We will prove Krull’s Principal Ideal Theorem as well as Hilbert’s Syzygy Theorem. A result known as the Snake Lemma will turn out to be important.

LEARNING ASSESSMENT

Graded assessment is done through homework and exams. Other assessment techniques will also be used; these include direct questioning, problems to be solved in class, and discussions during office hours. Additionally, problems will be assigned for student self-assessment.

COURSE ORGANIZATION

The plan is to cover chapters IV–VII.§2 in “Introduction to Commutative Algebra and Algebraic Geometry”. Precise reading assignments will be posted on the course homepage.

Exams: Two 24 hour take-home exams (one midterm and one final) will be held in the last week of October and the first week of December.

Other important dates:

Labor Day	1 Sep.
Last day to drop a course	27 Oct.
Thanksgiving Vacation	26–30 Nov.

ASSIGNMENTS, GRADES, AND GRADING

Homework will be assigned 8 times during the semester. Students are encouraged to work on the homework problems in groups.

Grading policy: On exams and written homework, partial credit for correct steps will be awarded even if the final answer is wrong. Full credit will be given only if the final answer and all intermediate steps are correct. A correct final answer per se does not guarantee any credit.

Deadlines and make ups: Homework is not accepted after the deadline. The final exam serves as make-up for a midterm exam that was missed for legal reasons.

Final grade: Homework (8 assignments) and exams (2) are counted towards the final grade with weights as follows: Homework 50%, midterm exam 25%, and final exam 25%.

GENERAL POLICIES

Academic integrity: It is the aim of the faculty of TTU to foster a spirit of complete honesty and a high standard of integrity. Any attempt of students to present as their own any work that they have not honestly performed is regarded by faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. Please refer to the Texas Tech University Catalog p. 46-47 for more information on this subject.

Civility in the classroom: You are expected to be courteous to me and your fellow students. This means that your cell-phone should be turned off during the class; you shall not chat with your friends during class, eat meals or snacks, or cause a distraction in any other way. Please see more information on-line at www.studentaffairs.ttu.edu/vpsa/publications/civility.htm.

Officially approved trips: Students are allowed to miss class for trips officially sanctioned by TTU. The student must notify the instructor of upcoming trips and present written authorization.

Religious holy days: You are allowed to take the time to travel and observe a religious holy day. Prior notice should be given at least 1 day before the absence.

Students with disabilities: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructors office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.