Graduate Algebraic Geometry

MATH 5330-001 (88315)

Classroom:	PKH 311, Tues & Thurs 5:30-6:50 pm
Contact Data:	PKH 462, 817-272-3932, vancliff@uta.edu
Web:	http://www.uta.edu/math/vancliff/T/F13
Office Hours:	Tues & Thurs 4:40-5:20 pm, or by appointment
Textbook:	Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra, Undergraduate Texts in Mathematics, by David A. Cox, John Little, Donal O'Shea, Springer, 3rd edition
Prerequisite:	Math 4321 (or equivalent)
Tests:	none
Grading:	homework solutions (due every 2 or 3 weeks), attendance, participation & presentation of some material
Important Dates:	Mon Sept 9 = Census date; Wed Oct 30 = last day to drop course with W (see page 3); Nov 28 - Dec 1 = Thanksgiving Holiday; Tues Dec 3 = last class.

COURSE CONTENT & LEARNING OUTCOMES

Expected Learning Outcomes: upon completion of this course, for any of the topics listed below, you should be able to: 1. write the definition of many of the terms; 2. solve problems; 3. construct correct & detailed mathematical arguments to justify your claimed statements, i.e., write proofs of some basic results.

This course will be an introduction to algebraic geometry. The main topics to be covered will be theory of ideals in polynomial rings, Nullstellensatz, Hilbert Basis Theorem, Gröbner bases with computation in polynomial rings, affine and projective varieties, singular and smooth points on varieties. This material is essentially Chapters 1, (some of) 2, 4, 5, and 8. The main focus throughout will be on theory, ideas and examples. There might be a little focus on computational aspects, but not much. If time, applications of algebraic geometry to solving problems in noncommutative algebra & physics will also be discussed, together with noncommutative algebraic geometry.

Some new ideas will be introduced in the homework, and lectures will appeal to the homework from time to time. The homework will be posted at my website, and revised from time to time.

HELP OUTSIDE CLASS TIME

Feel free to ask me questions during class, after class & in office hours. You can also e-mail me your questions, or e-mail me to schedule an appointment. My office hours are times I am planning to be in my office where you can drop by withOUT an appointment to ask me questions.

My web page (given above) will list the homework as the semester progresses as well as other miscellaneous information pertinant to this course. You are advised to check it every couple of days.

I also recommend that, if possible, y'all discuss the class material with each other & collaborate on homework. Being able to converse mathematically is a skill, & is practiced by discussion with classmates & with the instructor.

ATTENDANCE

Attendance is required. You are responsible for any and all announcements made in class and on my website. You are responsible for any and all material missed during lecture. If you miss a lecture, consult with your classmates regarding the material missed.

DISABILITY ACCOMMODATIONS

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Furthermore, if a student has an officially recognized disability, and would like special arrangements, then s/he should notify me AS SOON AS POSSIBLE.

ELECTRONIC COMMUNICATION

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php .

STUDENT FEEDBACK SURVEY

At the end of each term, students enrolled in classes categorized as "lecture", "seminar" or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each students feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlingtons effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs .

FINAL REVIEW WEEK

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week (FRW). The purpose of FRW is to allow students sufficient time to prepare for their final examinations. Although classes are held as scheduled during FRW, and instructors may introduce new concepts as appropriate during FRW, there shall be no scheduled activities such as required field trips or theatrical performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During FRW, an instructor shall not give any examinations constituting 10% or more of the course grade, except make-up tests and laboratory examinations, and no instructor shall give any portion of the final examination during FRW.

ACADEMIC INTEGRITY

Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:
"I pledge, on my honor, to uphold UT Arlingtons tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code."

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which might result in the students suspension or expulsion from the University and a grade of FAIL in the class given to involved student(s). In particular, the Regents' Rules and Regulations states: "scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or material that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts".

UTA reserves the right to impose disciplinary action for any kind of infraction of UTA policies. Engagement in conduct which disrupts, obstructs or interferes with activities authorized by UTA will result in disciplinary action against the perpetrator(s). Such conduct includes leaving and returning to the room frequently. It also includes the use of a cellular phone, ringing cellular phones, etc.

STUDENT SUPPORT SERVICES

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/resources .

DROP POLICY

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will NOT be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

However, nonpayment of tuition might result in a student being dropped from the class.

EMERGENCY EXIT PROCEDURES

Should we experience an emergency event during class that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located TO YOUR RIGHT as you exit the room. When moving through the building during an emergency, use the STAIRS, not an elevator. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.