Algebraic Geometry I
4 Credit Hours

Fall 2018

Instructor name: Kevin Tucker	CRN/Course Number: 31610/MATH 552
Office location: SEO 427	Times and days class meets: MWF 12-1pm
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Web Page

https://kftucker.people.uic.edu/Math552Fall2018

Course Description, Goals, and Objectives

Algebraic geometry is one of the oldest and yet most active disciplines in mathematics, with close connections to number theory, combinatorics, representation theory, complex analysis, differential and symplectic geometry, and it is also used in a wide variety of applied settings. This course is meant to serve as an introduction for graduate students with a view towards future research in a related field. Topics include: affine and projective varieties and schemes, regular and rational maps, function fields, dimension and smoothness, projective curves, and sheaves. We will focus on a mix of both classical examples and modern theory, with the objective that students are subsequently well-prepared to begin a rigorous study of cohomology, intersection theory, moduli, and other advanced topics in the future.

COURSE MATERIALS

Required Texts

Red Book of Varieties and Schemes by D. Mumford

Recommended (Optional) Texts or Other Materials

Algebraic Geometry by R. Hartshorne
Algebraic Geometry by U. Gortz, T. Wedhorn
An Invitation to Algebraic Geometry by K. E. Smith et. al.
Basic Algebraic Geometry 1: Varieties in Projective Space by I. R. Shafarevich
Algebraic Geometry: A First Course by J. Harris
The Rising Sea: Foundations of Algebraic Geometry by R. Vakil
Algebraic Geometry by A. Gathmann
Algebraic Geometry by J. Milne
The Stacks Project

COURSE REQUIREMENTS, METHODS OF EVALUATION, & GRADING POLICIES

Evaluation Criteria
There will be three graded components of the course.
- *Homework – 70%*
- *Daily recaps – 10%*
- *Final exam – 20%*

Homework
Homework will be assigned in most lectures (at most three problems a lecture); all of the problems assigned in a given week are due at the beginning of class the following Wednesday.

Daily Recaps
Each lecture, one student will be assigned as the scribe. The scribe for a given lecture must write a short (at most one page) recap summarizing the content of the lecture. This should include the statements of all definitions, theorems, lemmas, propositions, and an overview of all examples; it need not, however, include any proofs from the lecture. The summary should be emailed to kftucker@uic.edu as a pdf before the next lecture, and the collection of daily recaps will be posted online on the course website.

Final Exam
Each student is expected to schedule an oral final exam at the end of the semester.

GRIEVANCE PROCEDURES
UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University's "Nondiscrimination Statement". Students are also urged to read the document "Public Formal Grievance Procedures". Information on these policies and procedures is available on the University web pages of the Office of Access and Equity: http://oae.uic.edu/.

STUDENT EVALUATION OF TEACHING PROGRAM (COURSE EVALUATIONS)
Student evaluations of teaching play a fundamental role in improving course content, format, and delivery (teaching) at UIC. Students are invited to share feedback on the course with the instructor throughout the semester, and should complete to the online course evaluation form emailed to them at the end of the semester before 12am on the first day of finals.

COURSE POLICIES

Attendance Policy
Registered students are expected to attend and participate in all of the lectures and should notify me before any planned absence.

Policy for Missed or Late Work
Late assignments will not be accepted without prior approval.

Electronic Communication
The best ways to reach me are to catch me before & after class, in my office hours, and by email. I will generally try to reply to emails within 1-2 days; please feel free to resend again after that. For questions involving mathematical content, it is generally better to ask in class.

Academic Integrity Policy
For written assignments in the course (both homework and daily recap summaries), students are encouraged to work together. However, the final write-up must be done individually. As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community–students, staff, faculty, and administrators–share the responsibility of insuring that these standards are upheld so that such an environment exists. Instances of academic misconduct by students will be handled pursuant to the Student Disciplinary Policy:
http://dos.uic.edu/docs/Student%20Disciplinary%20Policy.pdf

RELIGIOUS HOLIDAYS
Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when he/she will be absent. The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. If the student feels aggrieved, he/she may request remedy through the campus grievance procedure.
http://oae.uic.edu/docs/ReligiousHolidaysFY20152017.pdf

ACADEMIC DEADLINES
http://grad.uic.edu/academic-calendar-0#Fall18

DISABILITY ACCOMMODATION
The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for access to and/or participation in this course are welcome, but must be registered with the Disability Resource Center (DRC). You may contact DRC at 312-413-2183 (v) or 773-649-4535 (VP/Relay) and consult the following:
http://drc.uic.edu/guide-to-accommodations.