



MATH536A - Algebraic Geometry

Tuesday and Thursday, 9:30-10:45am, Math Teaching Lab, Room 124

Inclusive Excellence is a fundamental part of the University of Arizona's strategic plan and culture. As part of this initiative, the institution embraces and practices diversity and inclusiveness. These values are expected, respected and welcomed in this course.

Description of Course

This is the first semester of a one-year sequence on algebraic geometry.

Course Prerequisites or Co-requisites

Familiarity with point set topology and rings and their ideals will be assumed. Knowledge of Galois theory and differential/complex geometry would be beneficial, but is not essential.

Instructor and Contact Information

Jack Hall

office: ENR2 S349

e-mail: instructorfirstnamelastname at math dot arizona dot edu

office hours: Monday, 12:30-2pm (week 2 onwards); Thursday, 1:30-3pm; and by appointment.

webpage: http://math.arizona.edu/~jackhall/F2016_math536A.html

Course Objectives and Expected Learning Outcomes

The goal for this semester is to give a definition of a quasi-projective algebraic variety in the language of schemes.

Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>.

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See <https://deanofstudents.arizona.edu/absences>.

Required Texts or Readings

We will be mainly working from *The Rising Sea: Foundations Of Algebraic Geometry*, by Ravi Vakil. This is available for free download at <http://math.stanford.edu/~vakil/216blog/index.html>.

Other sources that might be useful for the course are:

- *Algebraic Geometry*, by Robin Hartshorne;
- *The red book of varieties and schemes*, by David Mumford; and
- *Algebraic geometry and arithmetic curves*, by Qing Liu.

Purchasing the above books is not required. A recently developed and fantastic reference is the *Stacks Project*. This is available online at <http://stacks.math.columbia.edu>.

Assignments and Examinations: Schedule/Due Dates

There will be no exams, but there will be weekly homework.

Every Tuesday (except week 1), at the beginning of class, homework will be due. This means that there are 15 problem sets. To obtain the maximum score (100) in the class, it is neither necessary nor sufficient to submit a problem set every week.

Each week, I will assign somewhere between 5 and 20 problems for you to choose to complete that week. These problems will vary in difficulty and topic. Every problem you submit will be graded out of 1.5 and the score obtained will contribute that % to your final grade.

For example, if you submit 12 problem sets throughout the semester, with each problem set containing the solutions to 6 problems and you obtain 1.5/1.5 for each of them, then you will obtain the maximum score for the class ($12 \cdot 6 \cdot 1.5 = 108 > 100$).

Grading Scale and Policies

I will be assigning letter grades. Your grade will be determined from your homeworks.

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal>, respectively.

Dispute of Grade Policy: Grades can be disputed up to 1 week after homework is returned.

Honors Credit

Students wishing to contract this course for Honors Credit should email me to set up an appointment to discuss the terms of the contract. Information on Honors Contracts can be found at <http://www.honors.arizona.edu/faculty-and-advisors/contracts>.

Elective Name and Pronoun Usage

This course supports elective gender pronoun use and self-identification; rosters indicating such choices will be updated throughout the semester, upon student request. As the course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Accessibility and Accommodations

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://www.library.arizona.edu/help/tutorials/plagiarism/index.html>.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-harassment Policy

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>.

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>.

Student Assistance and Advocacy information is available at <http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>.

Office of Diversity: <http://diversity.arizona.edu/>

If you need to talk to someone:
<http://www.health.arizona.edu/counseling-and-psych-services>
http://oasis.health.arizona.edu/hpps_oasis_program.htm

Confidentiality of Student Records

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.