

MATH 632: ALGEBRAIC GEOMETRY II (WINTER 2023)

COURSE INFORMATION

Lectures: TR 11:30am-1pm in EH 3866

Lecturer: Aaron Pixton

E-mail: pixton@umich.edu

Office Hours (for now): M 3pm-4pm, T 3pm-4pm, F 2pm-3pm (all in my office, EH 3842), or by appointment

COURSE WEBSITE

The main course website is at <http://www-personal.umich.edu/~pixton/632/>.

COURSE DESCRIPTION

This is a continuation of Math 631. Topics covered will include quasicohherent sheaves, line bundles, sheaf cohomology, algebraic curves, differentials, and the Riemann-Roch theorem. For most of the term we will be (loosely) following Ravi Vakil's notes "Foundations of Algebraic Geometry" (available at <http://math.stanford.edu/~vakil/216blog/index.html>), beginning with Chapter 14.

PREREQUISITES

I will assume general familiarity with Chapters 1-13 of "Foundations of Algebraic Geometry".

PROBLEM SETS

There will be problem sets every 1-2 weeks, usually assigned on Thursdays (but sometimes Tuesdays) and due one week later. Problem sets should be submitted on Gradescope (link on Canvas - the Canvas site will only be used for announcements and Gradescope).

You are encouraged to discuss the problems with your classmates, but you must write up your solutions independently. You must also include a written acknowledgment of everyone you worked with in your assignments, as well as any external sources you consulted.

There will be no written exams. In addition to the 6-8 problem sets, near the end of term you will be asked to read and learn more about some additional topic of your choice in algebraic geometry (I will provide a list of suggested topics). You will then have the option of either writing a short expository paper on the topic or doing an informal oral exam on it. (This component will be 25% of your final grade.)

OFFICE HOURS

My current weekly office hours are M 3pm-4pm, T 3pm-4pm, F 2pm-3pm (EH 3842), but these may be subject to change. You are also welcome to contact me to schedule an alternative meeting time.