

MATH 631: ALGEBRAIC GEOMETRY I (FALL 2020)

COURSE INFORMATION

Lectures: TR 11:30am-1pm on Zoom (link to Zoom session on Canvas page)

Lecturer: Aaron Pixton

E-mail: pixton@umich.edu

Virtual Office Hours: M 11am-12pm, W 2:30pm-3:30pm, F 4pm-5pm on Zoom (link on Canvas), or by appointment

COURSE WEBSITE

The main course website is at <http://www-personal.umich.edu/~pixton/631/>. I will use the Canvas site at <https://umich.instructure.com/courses/381343> for the virtual logistics of the class (Zoom).

COURSE DESCRIPTION

This course will introduce the basic notions and objects of modern algebraic geometry from a scheme-theoretic perspective. We will be (loosely) following Ravi Vakil's notes "Foundations of Algebraic Geometry" (available at <http://math.stanford.edu/~vakil/216blog/index.html>). My plan is to cover most of what is in Chapters 2-14, but the precise ending point for material for the semester will be undecided until closer to the end of term.

PREREQUISITES

The most essential things to know for this class are basic ring/module theory (prime ideals, localization, tensor product) and some topology (open covers, bases, etc). It will also be helpful to have some familiarity with basic category theory (see Chapter 1 of Vakil's notes).

PROBLEM SETS

There will be weekly problem sets. The precise schedule is TBD, but each one will be assigned a week before it is due. Problem sets should be submitted by e-mail (to me at pixton@umich.edu, or if we get a grader then to the grader but still ccing me); please use the subject line "631 - Problem Set N", where N is the number of the problem set.

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 exams; your final grade will be based on the problem sets.

OFFICE HOURS

My current weekly office hours are M 11am-12pm, W 2:30pm-3:30pm, F 4pm-5pm, but these may be subject to change. Canvas will always have the most up to date schedule (and the link for the Zoom session). You are also welcome to contact me to schedule an alternative meeting time.