MATH 631: ALGEBRAIC GEOMETRY I (FALL 2022)

Course Information

Lectures: TR 11:30am-1pm in EH 4088
Lecturer: Aaron Pixton
E-mail: pixton@umich.edu
Office Hours: M 12pm-1pm (EH 3842), W 8pm-9pm (Zoom: https://umich.zoom.us/j/4351078600), F 2pm-3pm (EH 3842), or by appointment

Course Website

The main course website is at http://www-personal.umich.edu/~pixton/631/.

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). We will cover most of Chapters 2-13 and then a sparser subset of Chapters 14-18.

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, usually posted on the course website on Thursday afternoons and due on the following Thursday before class. Problem sets should be submitted by e-mail (to the grader at garyjhu@umich.edu, but you should also cc me at pixton@umich.edu so that I have a copy too); 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 12pm-1pm (EH 3842), W 8-9pm (Zoom: https://umich.zoom.us/j/4351078600), or 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.