

MATH 697: MODULI OF CURVES (FALL 2022)

COURSE INFORMATION

Lectures: TR 2:30pm-4:00pm in 271 Weiser Hall

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

There is a course website at <http://www-personal.umich.edu/~pixton/697/>.

COURSE DESCRIPTION

The moduli space of curves is a fundamental object in geometry; depending on your perspective, points in it either correspond to algebraic curves or to compact Riemann surfaces. In this course, we will survey various features of the moduli space of curves, with particular emphasis on combinatorial aspects. We will switch between algebraic and topological perspectives at different parts in the course, but in either case we will omit some of the more technical details and focus more on describing/using results and building intuition.

Rough list of topics:

- constructing the moduli space of curves: hyperbolic geometry, Teichmüller theory, algebraic geometry
- the cohomology of the moduli space of curves
- the Deligne-Mumford compactification
- tropical curves

PREREQUISITES

You should be familiar with some form of cohomology (e.g. singular or de Rham), and also have some idea of either what an algebraic curve of genus g looks like or what a Riemann surface of genus g looks like.

EXAMS

There will be no exams. There will be 2-3 problem sets (graded fairly informally).

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.