

MATH 636: MODULI OF CURVES (WINTER 2020)

COURSE INFORMATION

Lectures: TR 10am-11:20pm in EH 3096

Lecturer: Aaron Pixton

E-mail: pixton@umich.edu

Office Hours: TWR 2:30-3:30pm in EH 3842 or by appointment

COURSE WEBSITE

There is a course website at <http://www-personal.umich.edu/~pixton/636/>.

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 its cohomology. 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:

- basic Teichmuller theory
- cohomological stability and related results
- algebraic construction of the moduli space of curves
- the Deligne-Mumford compactification
- definition/examples of cohomological field theories and Frobenius manifolds
- classification of semisimple cohomological field theories

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 TWR 2:30-3:30pm in EH 3842. These may be subject to change/cancellation, but the course website will be kept up to date. You are also welcome to contact me to schedule an alternative meeting time.