

Class Meetings MWF in Miller G029. 1115–1205.

Office Hours M 9:00-9:45, W 12:20 - 12:50, F 10:10-10:45, or by appointment.

Texts and materials

(1) *Euclid's Elements Book One (Heath Translation) with Questions for Discussion by Densmore* (ISBN: 978-1-888009-46-0).

(2) Course packet, includes numerous articles and chapter excerpts and *An invitation to Euclid's Elements* by Brown and O'Shea (available from bookstore in Week 2).

(3) There may also be related articles and excerpted chapters posted on the course's canvas website (or handed out in class) that are required reading.

Course Overview

This course is a course of two halves, both studying the significant influence of mathematics on democracy and governance. First we will turn our attentions to Euclid's *Elements*, its study for its own sake integrated with analysis of geometry's axiomatic method as a model for reason and nature. Second, moving from classical and (mostly) metaphorical to modern and (mostly) literal, we turn to apportionment, voting theory, and the geometry of redistricting/gerrymandering. Readings and discussion will be drawn from the decidedly old-fashioned – Plato, Hobbes, Jefferson, Lincoln, Lewis Carroll – to the thoroughly modern – Voting Rights Act, current Supreme Court cases and related law review articles.

There will be two class projects. The first (minor) project will be a one week discussion and paper of the shifting place of Euclid in the Victorian era (<https://blogs.scientificamerican.com/roots-of-unity/the-math-wars-lewis-carroll-style/>). The second (major) project will be a three week map drawing where the class will redraw district lines in the state of Virginia using <http://www.districtbuilder.org/>.

Class Time and Reading

A large emphasis will be placed on group discussion and at-the-board presentations. Each person will be responsible for presenting a key idea to the class each day.

Cell Phone Policy

All cell phones (and “smart” watches, etc) must be disengaged before coming into the classroom, even if class time has not started. The learning space is a sacred space and must be treated accordingly, engagement with the texts and your peers being crucial to a learner's success. Students violating this policy will be asked to leave the class and are welcome to return for the next class meeting.

Assessment

- Canvas quizzes will be assigned regularly and are due via canvas every meeting day at 11am. They are based on the reading assignments and consist of multiple choice questions. These are to be attempted individually and are open book.
- There are three in class tests, scheduled for **W 9/20**, **F 10/13**, and **F 11/17**. These are all closed book and the content is based on your homework assignments. Each test will only cover new material since the last test, with the caveat that all new material builds on the old.
- Each student is responsible for presenting a proposition or problem for each class meeting. These will be graded on a 1/3/4/5 scale. Each student is responsible for bringing questions and comments to class each day that add to the discussion.
- The minor project, "Euclid in the Victorian Era," will take place on the week of October 16-23. The major project, "Redistricting Virginia," will take place during the last two weeks of the semester with a presentation due for finals week. These projects are carried out collectively with one finished document in each representing the work of the class.
- You will be asked to evaluate your own contributions to class discussion and to each of the projects. In turn, your classmates will be asked to evaluate your contributions. These peer evaluations will be considered by the instructor in evaluating your score in the projects.
- The weighting of each assessment component is as follows:

In Class Tests	45 %
In Class Presentations and Discussion	25 %
Minor Project	10 %
Major Project / Final Exam	20%

First Week Attendance Policy

At the instructor's discretion, any student registered for a class in the Department of Mathematics and Statistics who does not attend at least one of the first two scheduled meetings of the class (or does not attend the first scheduled meeting of a class that meets once a week) MAY be administratively dropped from the class. Students will be notified by e-mail if they will be dropped. Students who fail to attend should not assume they will be administratively dropped by their instructor; it is the students responsibility to drop the course on their own or they will receive a grade at the end of the semester. All students are responsible for verifying the accuracy of their schedules and changes made in their schedules.

General JMU policy

Go to www.jmu.edu/syllabus for university wide policies on Attendance, Academic Honesty and SafeAssign, Adding/Dropping Courses, Disability Accommodations, Inclement Weather and Religious Accommodations.