

MATH 3094—FALL 2020

**MATHEMATICS & POLITICS:
VOTING, FAIR DIVISION, AND CONFLICT**

Instructor: Myron Minn-Thu-Aye, myron@uconn.edu

Class Time: MWF 9:05–9:55

This course applies mathematics to shed light on problems in the realm of politics, both domestic and international. We begin with a study of voting systems, including both electoral and legislative processes. By formalizing notions of fairness, we will work towards theorems that will inform just how fair we expect elections to be. Our discussion of fair division will revolve around the problem of distributing seats in the U.S. House of Representatives among the fifty states. We will explore various apportionment paradoxes (e.g. how could an increase in the total number of seats lead to a reduction in the number of seats assigned to a particular state?) through history and determine whether these are avoidable in the future. The development of methods to measure the political power of voting blocs and coalitions will inform our analysis of the apportionment problem and lead us to investigate political conflict via game theory.

Prerequisites: MATH 2710 or MATH 2710W. Instructor consent required.

Questions? Please email me or stop by my office, MONT 229!

