BI-CO MATHEMATICS COLLOQUIUM

Math Appreciation Week Keynote Speaker

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"Gerrymandering: Why It's More Complicated Than You Might Think"

Monday, April 15, 2019

Talk at 4:00 – Park 243

Tea at 3:30 – Park 361, Math Lounge

Abstract:

Gerrymandering is the practice of drawing boundaries of electoral districts in a way that unfairly benefits or hurts a particular group of voters. Common targets of gerrymandering include supporters of a political party (*partisan gerrymandering*) or members of a racial minority (*racial gerrymandering*). As we shall see, in the US, these two types of gerrymandering are intertwined in extremely complex ways.

In this talk, I will give an overview of how gerrymandering works and briefly summarize its legal and political history. I will then introduce you to the different mathematical tools that have been developed to combat different kinds of gerrymandering. In the case of partisan gerrymandering, the challenge lies in articulating a quantitative standard of partisan fairness, which turns out to be much trickier than your intuition might suggest. In the case of racial gerrymandering, the challenge is to show that race is a relevant variable at all! After all, racial gerrymandering can only occur if different races tend to vote differently, and this is extremely difficult to prove when we have no way of knowing how any given individual voted.

Along the way, I hope to dispel some common myths about gerrymandering and to leave you with a fuller appreciation of the true complexity of the problem. The good news is that there is a growing popular movement in the US aimed at eradicating gerrymandering and ensuring fair districts. The bad news is that many of the properties that people expect from a "fair" districting plan turn out to be inherently contradictory. It is only once we understand what the trade-offs are that we can make intelligent decisions for the future.

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