



Operations Research and Engineering Management Seminar Series

Research Seminar Political Districting to Minimize County Splits



Dr. Austin Buchanan
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at Oklahoma State University
Friday, April 5th
11:00am - 12:15pm
Caruth 383

Abstract: When partitioning a state into political districts, a common criterion is that political subdivisions like counties should not be split across multiple districts. This criterion is encoded into most state constitutions and is sometimes enforced quite strictly by the courts. However, map drawers, courts, and the public typically do not know what amount of splitting is truly necessary, even to satisfy basic criteria like contiguity and population balance. In this work, we provide answers for all congressional, state senate, and state house districts in the USA using 2020 census data. Our approach is based on integer programming. The associated codes and experimental results are publicly available on GitHub. This work is coauthored with Maral Shahmizad.

Biography: Austin Buchanan is an Associate Professor of Industrial Engineering & Management at Oklahoma State University. He holds a PhD in Industrial and Systems Engineering from Texas A&M University. His research focuses on solving combinatorial optimization problems in networks, particularly those having connectivity or distance constraints, with applications in political districting. He currently serves as an Associate Editor for the journals *Networks* and *Optimization Letters*. His research is funded by the National Science Foundation (including an NSF CAREER award), and his papers have appeared in the journals *Operations Research*, *Mathematical Programming*, *Mathematical Programming Computation*, *INFORMS Journal on Computing*, and *Networks*, among others.