E19 Final Project Proposal

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Modeling Disease Spread through the SIR model

For our final project idea, we thought of developing a model for the spread of a contagious disease within a population. We would use numerical methods to simulate the progression of the disease and study the impact of different intervention strategies by varying parameters such as transmission rates and recovery rates, as well as modeling mitigation and lockdown scenarios. The Susceptible, Infectious, and Recovered (SIR) model is a series of ordinary differential equations that are frequently solved using numerical methods, which we feel would be a good topic to examine further. Different types of models can be implemented and compared to real-past data on the transmission and recovery rates of diseases such as COVID-19.

There is enough literature and data available online for us to work off of for this project idea, so implementing this model in code should not be too much of a challenge.