

Summer 2023 Undergraduate Research Internship

Project Name

Agent-Based Modeling of the COVID-19 Pandemic in North Carolina

Faculty Mentor

Dr. Paul Delamater (Geography)

Project Description

The purpose of this subproject is to develop an agent-based model (ABM) that can be used to reconstruct the COVID-19 outbreak in North Carolina. The ultimate goal of the larger project is to analyze how different behaviors and decisions made at multiple levels (e.g., personal, state-level policies) and at different times could have impacted the short and long term outcomes of the pandemic.

Scope of Work for Internship

The intern will assist in searching for observed data and parameters to use in the ABM (e.g., searching the academic literature and evaluating other models). The intern will also assist in the development and revision of specific modules in the ABM (e.g., the module that controls vaccination uptake). The intern will assist in comparing the output of the ABM to observed case, hospitalization, and death data. The intern will assist in writing text and preparing graphics for papers/reports.

Expected Deliverables

The expected deliverables will be dependent on the details of the project. If the intern is working on a specific aspect/module of the ABM, the expectation is that the module would be complete. In all cases, the intern will be responsible for completing a final written report detailing the work performed.

Preferred Skills

Must be detail oriented and organized; some statistics knowledge required; R programming preferred but not required.