Summer 2023 Undergraduate Research Internship

Project Name
Disparate Impacts of Salinity Intrusion on People and Communities in Eastern North Carolina

Faculty Mentor
Dr. Conghe Song (Geography)

Project Description
This project will explore salinity intrusion into the croplands of Coastal Counties of NC as a result of climate change. We plan to map the spatial patterns of soil salinity using remotely sensed images from Landsat/Sentinel/MODIS Satellites and link it to land-cover/land use changes in the Coastal Counties of NC. We plan to eventually understand the Environmental Justice aspect of the impacts of salinity intrusion on croplands abandonment, crop yield, and rural out-migration. We also plan to conduct an in-depth household survey to understand salinity intrusion on rural farmers' livelihoods. Eventually, we plan to integrate the social, economic, and demographic data with the physical environment into a spatially-explicit Agent-Based Model to simulate salinity intrusion on environmental justice on the livelihoods of people and communities in Eastern NC.

Scope of Work for Internship
The intern will conduct preliminary analysis of the agricultural census data for the coastal counties in North Carolina with respect to crop yield, cropland ownership, and cropland tenancy, as well as some data analysis to tie the cropland ownership with demographic data from the US Census through time. The intern will also help review the literature on salinity intrusion on cropland abandonment and usage. The intern may also be involved in preliminary field surveys.

Expected Deliverables
- A preliminary analysis of agricultural census data for the NC Coastal Counties, if possible tying the data to the demographic data from the US population census.
- A literature review of salinity intrusion on cropland usage and crop yield.

Preferred Skills

- Basic statistical skills, either using Excel, R, or any other software.
- Basic GIS skills to make maps with ArcGIS Pro or QGIS.
- Ability to search literature on Scopes and to summarize the major finding in the papers identified.