Geog 410 Modeling of Environmental Systems
FALL 2022

Instructor: Dr. Conghe Song (email: csong@email.unc.edu, phone: 843-4764)

Class Time: TR 12:30-1:45pm Carolina Hall 322

Course Description: The environment is a dynamic and living system in which the interactions of numerous biological, biophysical and biogeochemical processes determine the rate and the direction of change. A comprehensive understanding of the past and current status of the environment and prediction for its status in the future cannot be achieved without the help of computer-based models. Computer-based models can integrate natural history, physiological, and ecological information that has been gathered over many years by many people. Geog 410 takes a system's view of the environment, and introduces the fundamental concepts and approaches in modeling of environmental systems. The course will be focused on modeling the dynamics of energy and matter flow through the environment, including the energy and matter flow in the natural environment and that with human disturbance. Throughout the course, we will use the Matlab as the tool to assist us to model the environmental systems. The course is composed of both instructor lectures and hands-on exercises using Matlab (prior experience in programing is NOT required) for model development. The objectives of the course include: (1) understanding of the fundamental principles how environmental systems work, (2) achieving systems thinking skills, and (3) proficient use of Matlab for model development.