

**Presenter:**

Dr. Andrew Lawson, Medical University of South Carolina

**Title:**

Bayesian Spatial Analysis of Infectious diseases: models and metrics

**Abstract:**

The Covid-19 pandemic has focused awareness on the need for good modeling of infectious disease spread and the need for surveillance which can alert public health officials to developing adverse events such as clusters of unusual risk (hot spots). Bayesian models can provide a dynamically flexible framework for such modeling via recursive Bayesian learning. In addition, monitoring of events can be facilitated by using posterior functionals of risk. This talk will address some infectious disease modeling basics and will review already developed surveillance functionals (SCPO, SKL). Novel developments in surveillance metrics will be examined including directional potentials, exceedance probability, and exceedance level, related to extreme value theory(EVT). The relation between model choice and metric evaluation is also explored.