COLLOQUIUM SERIES: SPRING 2016

APPROXIMATE BAYESIAN COMPUTATION FOR COMPARTMENTAL EPIDEMIC MODELS

Abstract:

Epidemic modeling techniques allow investigators to better understand the spread of diseases by quantifying pathogen behaviors, and allowing users to weigh the evidence for particular modes of transmission. These models also provide the ability to forecast future spread, suggest new public health interventions, and evaluate existing ones. Nevertheless, implementation of epidemic models can be difficult due to their complex nature and the presence of poor or missing data.

We propose a general class of spatial SEIRS compartmental models in a hierarchical Bayesian framework, along with software designed to perform such analyses efficiently using Approximate Bayesian Computation via Sequential Monte Carlo (ABC-SMC). We will begin by introducing ABC techniques, followed by a brief introduction to the ABSEIR R package. Particular attention will be paid to the evaluation of spatial and intervention related hypotheses, using the examples of epidemic and endemic cholera spread in Haiti and the Dominican Republic.

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WHEN

February 18, 2016
3:30 p.m.

WHERE

61 Schaeffer Hall

RECEPTION

241 Schaeffer Hall
3:00 p.m.