



TRINITY UNIVERSITY

DEPARTMENT OF MATHEMATICS

COLLOQUIUM SERIES  
SPRING 2011  
[www.trinity.edu/math](http://www.trinity.edu/math)

## Mathematical Approaches to Infectious Disease Prediction and Control

*Lauren Ancel Meyers*

*Section of Integrative Biology, The University of Texas at Austin*

*Abstract:* Mathematics has long been an important tool for understanding and controlling the spread of infectious diseases. I will present an overview of compartmental models, the traditional approach to modeling infectious disease dynamics, and then introduce contact network epidemiology, a relatively new approach that applies bond percolation on random graphs to model the spread of infectious disease through heterogeneous populations. As I will illustrate, these methods can be used to address public health challenges and have recently been coupled with powerful computational methods to optimize epidemic control strategies.

MMS 141  
3:45 PM–4:45 pm  
February 23, 2011