


November 17, 2017  
Bidgood Hall Room 15  
11:00 A.M. - 12:00 P.M.

  
University of Alabama  
Student Chapter

Hosted By

  
CULVERHOUSE  
COLLEGE OF COMMERCE  
THE UNIVERSITY OF ALABAMA

## ***Predictive and Prescriptive Models of Cybercrime and Cybersecurity Investments Under Network Vulnerability***



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The effects of cyberattacks are being felt across the globe in multiple sectors and industries. The damages incurred include direct financial damages as well as reputation issues, the loss of business, the inability to provide the expected services, opportunity costs, and the loss of trust. The world economy sustained over \$460 billion in losses from cyberattacks in 2016 alone. In this talk, I will first describe a predictive analytical multiproduct network economic model of cybercrime in financial services in which the hacked products are perishable in that their "value" deteriorates over time. I will then discuss our research on prescriptive analytical models for cybersecurity investments and network vulnerability when firms compete and when they cooperate in terms of information sharing. Algorithms and computational results for both classes of models will be presented and discussed and a case study presented in the retail and energy sectors with extensive sensitivity analysis results that demonstrate the benefits of cooperation.

Prof. Anna Nagurney devotes her career to education and research that combines operations research / management science, engineering, and economics.

Her focus is the applied and theoretical aspects of network systems, particularly in the areas of transportation and logistics, critical infrastructure, and in economics and finance.