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# DEPARTMENT OF MATHEMATICS MASTER THESIS DEFENSE

**SPEAKER:** Rebecca Moody, Graduate Student  
Department of Mathematics

**Title:** Measuring the Effectiveness of Federal  
Funding Using Social Network Analysis

**Date:** Wednesday, July 20, 2016

**Time:** 1:00-2:00 pm

**Place:** MCS 220

Social network analysis (SNA) involves the use of network and graph theory to examine communication between coworkers, friendships, or co-authorship. SNA allows us to describe the changes in these networks over time, identify important members, and determine how members are connected with one another. In this work, we analyze how federal funding affects a network of researchers in the state of Arkansas.

The Advancing and Supporting Science, Engineering, and Technology (ASSET) initiative had two rounds of funding. The first, ASSET I, took place over three years and the second, ASSET II, over four years. By using a dataset of published journals, articles, and book chapters of researchers who received this funding, we created and measured the networks. By using social network graphs, we qualitatively describe the changes that took place. We also quantitatively analyze the networks by using measures such as degree centrality, betweenness centrality, and eigenvector centrality. These measures allow us to identify the key players and create regression models to determine if the number of published works, number of co-authors, organization, and center information make them important to the network.