



NORTHWESTERN INSTITUTE
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NORTHWESTERN
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**Northwestern Institute on Complex Systems
invites you to its**

Weekly Seminar

Speaker: Brian Rogers, Kellogg School of Management, Northwestern University

**Title: Meeting Strangers and Friends of Friends: How Random are Social Networks?
(Co-author: Matthew Jackson – Stanford University)**

When: Wednesday, May 30, 2007

Where: Chambers Hall, 600 Foster Street, Lower Classroom Level

Time: 12:00 – 1:00

NICO Coffee Hour will follow for questions, networking, and collaboration

Abstract

We present a dynamic model of network formation where nodes find other nodes with whom to form links in two ways: some are found uniformly at random, while others are found by searching locally through the current structure of the network (e.g., meeting friends of friends). This combination of meeting processes results in a spectrum of features exhibited by large social networks, including the presence of more high and low degree nodes than when links are formed independently at random, having low distances between nodes in the network, and having high clustering of links on a local level. We fit the model to data from six networks and impute the relative ratio of random to network-based meetings in link formation, which turns out to vary dramatically across applications. We show that as the random/network-based meeting ratio varies the resulting degree distributions can be ordered in the sense of stochastic dominance, which allows us to infer how the formation process affects average utility in the network.