Timing of the class will be decided after discussion with students who register for the class. Class will meet two times per week.

This seminar is intended as a theoretical and analytical introduction to structural network analysis. Social Network analysis is an up and coming area in Information Systems research and other business areas such as marketing and finance. The focus in business has been on analyzing the causes and consequences of social relationships. With respect to causes, the focus is on how individual incentives, demography, and homophily, and structural properties affect the formation of network ties. From a consequence perspective, the focus is on how social relationships affect economic outcomes such as performance, output and adoption and diffusion of products, information and practices. After taking this class, you would be able to conduct in-depth social network analysis of communities such as customer networks, peer to peer networks, open source developer networks, knowledge sharing communities.

The tools and theoretical foundation of social networks analysis have been developed in sociology. Essentially, network analysis focuses on patterns of relations between actors. Both relations and actors can be defined in many ways, depending on the substantive area of inquiry. For example, network analysis has been used to study the structure of affective links between persons, flows of commodities between organizations, shared members between social movement organizations, shared needles between drug users, the citation structure in academic disciplines, and the world wide web. What is central is an emphasis on the structure of relationality, which serves to link micro- and macro-level processes. We will spend the early part of the course becoming familiar with the theoretical foundations of structural network analysis, including principles of balance and transitivity, homophily, the implications of connectivity and density, the relationship between categories and networks, the nature of exchange structures, and power and centrality. The rest of the course will be devoted to specific substantive applications of the network approach. Though the focus of the course is on theory, it is impossible to make progress without paying attention to some of the technical innovations in network analysis. Thus we will also address methodological issues in passim along the way.

Requirements

There are three requirements of this course:

1. For each class a student has to present a pre-assigned paper to the class (15-20 minutes presentation, 4-5 slides). The student will be graded on the clarity with which he/she presents the paper and the questions that he/she raises and answers for others. There will be some papers which will be assigned to the whole class. we will discuss them in class. Students will be graded on their understanding of the papers. Both these things will account for 20% of the class grade.

2. The second requirement of this course is to write a seminar paper (15-20 pages) that explores some aspect of network theory. Ideally this paper will serve as the background for empirical study of some phenomenon you are interested in. I will ask for updates on your topic and progress throughout the quarter. Please talk to me if you are at loss in terms of what to write about; I can help you find a topic. This accounts for 40% of the class grade.
3. The third requirement of this course is writing a critique of a working paper. This assignment would be take home. The students would be graded on theoretical aspect of their critique. This accounts for 40% of the class grade.

Of course active participation in this seminar is expected!!

**READINGS AND SOFTWARE**

The basic reference for this class is Wasserman and Faust’s book, Social Network Analysis (1994, Cambridge University Press). It is readily available at trade bookstores and through on-line booksellers including Barnes and Noble (www.bn.com) and Amazon (www.amazon.com). I strongly encourage you to buy it; it is a good book to have on your shelf. Other readings can be found in book chapters or journal articles. For many of these you will be able to download the text from JSTOR (www.JSTOR.org), ProQuest, or another electronic full-text service. Photocopies of other assigned readings will be made available. I have put a great deal of reading on the preliminary syllabus, in part to introduce you to the traditions and diversity of structural analysis. However, we will identify the key readings for each week in advance. In addition to Wasserman and Faust, you might want to pick up a copy of John Scott’s book, Social Network Analysis: A Handbook (1991, Sage Press) which is a very readable introduction to networks and a useful guide. I can also recommend other good reference books that will help you become familiar with social network analysis.

The reading list is provided. As you will note that there are very few Information Systems papers in the list. It is due to two reasons. One the seminar papers in this area have been published in Sociology. Second, it is an up and coming area in Information Systems and other disciplines such as Finance, and Marketing and most of the papers in these areas are still unpublished. I will point you to interesting working papers in business throughout the course. I have also provided a list of recent social networks work in IS, marketing and finance after the reading list.

**COURSE OUTLINE**

*N.B. I consider this outline a work-in-progress. I will revisit it regularly and modify as necessary to take into consideration the substantive interests of members of the seminar.*

**Reading List**

**Week 1: Lecture 1**

*Social Network Notation & Basic Definitions*

Wasserman and Faust Chapter 2 and 4. in Wasserman and Faust, Social Network Analysis. Cambridge University Press.

*Centrality*

Wasserman and Faust Chapter 5. in Wasserman and Faust, Social Network Analysis. Cambridge University Press.


**Week 1: Lecture 2**

*Cohesive Subgroups*

Wasserman and Faust Chapter 6 and 7.


**Week 2: Lecture 1**

*Roles and Categories*


**Week 2: Lecture 2**

*Social Capital*


Joel Podolny. Networks as the Pipes and Prisms of the Market. *American Journal of Sociology* 107 (1) 33-60


**Week 3: Lecture 1**

*Embeddedness*


**Week 3: Lecture 2**

*Diffusion I*


**Week 4: Lecture 1**

**Diffusion II**


**Week 4: Lecture 2**

**Diffusion III: Adoption of Tetracycline Series**


**Week 5: Lecture 1**

**Diffusion IV: Opinion Leaders and New Product Diffusion**


**Week 5: Lecture 2**

*Search*


Granovetter, Mark. 1973. The Strength of Weak Ties. *American Journal of Sociology*


**Week 6: Lecture 1**

*Network Formation I*


Stephen, Andrew and Olivier Toubia, Explaining the Power-Law Degree Distribution in a Social Commerce Network, forthcoming, *Social Networks.*


Week 6: Lecture 2

Network Formation II


Param Vir Singh, Ray Reagans, Ramayya Krishnan. Forbidden to Simmelian Ties: Dynamics of Online Expertise Sharing Communities. *ILAB working paper*.

Week 7: Lecture 1

Small World and Implications


**Week 7: Lecture 2**

**Econometric Issues in Social Network Analysis**


**Recent Structural Network Applications in Information Systems, Finance and Marketing**

*Information Systems*

Lu, Yingda, Kinshuk Jerath, Param Vir Singh. Emergence of Opinion Leaders in Online Review Communities.


Param Vir Singh, Ray Reagans, Ramayya Krishnan. Forbidden to Simmelian Ties: Dynamics of Online Expertise Sharing Communities. *ILAB working paper*.


Ramaprasad, J. and Dewan, S., Understanding the Impact of Social Influence in an Online Music Community.

**Finance**


**Marketing**

Stephen, Andrew, and Olivier Toubia. Deriving value from Social Commerce Networks. *Journal of Marketing Research Forthcoming*.  


