Syllabus
Social Network Analysis
Spring 2016: Sociology 901
Instructor: Jason Fletcher
jason.fletcher@wisc.edu
Course Time: 9:00-11:30 AM, Wednesdays
Place: B223 Van Vleck Hall
Office Hours: Tuesdays 2-330 PM in Social Science 4430

Course Overview:

Social networks affect many important outcomes—health behaviors, labor market opportunities, romantic relationships, and the spread of information. They are also a source of resources and insurance against negative shocks. Understanding social networks have important policy implications on whether we should target resources or spread them over the entire network and how best to spread the effects of intervention efforts through a network.
This course reviews current research on social networks from sociology and economics as well as associated disciplines (computer science, and epidemiology). We will have a brief exploration of theoretical models but focus much of our time on empirical applications, including opportunities to learn how to use social network analysis software.
The course begins with an overview of basic facts and concepts. We will focus some time on early models of network formation and applications of peer effects and the social multiplier. We will also use network data to generate graphs and figures describing the networks

Requirements: homework assignments, two presentations, and a short paper on a topic relating to social networks

Pre-requisites: there are no formal prerequisites, but students who have not had prior courses in data analysis and statistical methods may struggle.
Course Objectives:

Students will be able to understand and formulate research questions relevant to social network analysis
Students will understand the sources, advantages, and disadvantages of alternative types of social network data
Students will be able to describe a social network and compare attributes across different social networks
Students will understand theoretical and empirical issues in current research on social network analysis

Grades
Your grades will include of four parts
1. Class participation (10%)
   This is a seminar; you are required to attend each class prepared to discuss the assigned readings.
2. Homework/Data Analysis (10%)
   The seminar will include a few homework assignments, where each student will create and manipulate social network figures using provided data.
3. Student Presentation (40%)
   Each student will make a short presentation on a social network paper (from those marked # in the syllabus), discussing the research question, the data, the empirical approach, the limitations, and key findings. Second, each student will also be a “discussant” on one of the social network paper presentations. Finally, each student will make a presentation of his/her short paper topic.
4. Short Paper (40%)
   Each student will prepare a 5-10 page paper that either (1) surveys a specific part of the empirical literature on social networks or (2) outlines a potential research project on social networks, discussing data, empirical approach and main hypothesis.
The textbooks for the course are:


Duncan Watts. Six Degrees


Recommended
Valente (2010). Social Networks and Health: Models, Methods, and Applications

**THE ONLY BOOK FOR YOU TO PURCHASE IS WATTS**

Data Opportunities
http://www.stanford.edu/~jacksonm/Data.html
http://www.brianckeegan.com/network-resources/

Software/Tutorials
SNA in R:
https://www.youtube.com/watch?v=-LgfBoKO_RI
Class Schedule

**Week 1 (Jan 20)**
Theoretical and empirical background; Classroom examples

Required:
Wasserman and Faust, Chapters 1, 2, 4

Recommended:
Wasserman and Faust, Chapter 5 (Centrality)
Valente Chapter 1

TED Talk: [Christakis](#)

**Week 2 (Jan 27)**
Data and Concepts: Network Formation

Required:
*Hanneman Chapter 1, 8-10

*Network Formation I: Random Networks*
Required:
Jackson Chapters 4-5

*Scale Free Networks*
Required:
Watts Chapter 4

Recommended
*Valente Chapters 3-5
**Week 3 (Feb 3)**
Homophily, Small Worlds, Structural Holes

Required:
Watts “Small World Problem” in Chapter 1
Watts Chapter 3

Recommended
Watts Chapter 5
#Moody, Race, School Integration, and Friendship Segregation in America, AJS 2001
#Alberich et al. Marvel Universe Looks Almost Like A Real Social Network. 2002

**Week 4 (Feb 10)**
Time, Sub-groups, Blockmodels and Strategic Network Formation

Required:
Wasserman and Faust, Chapter 9-10
Hanneman Chapters 4-6, 18

*Strategic Network Formation II:*
Required:
Jackson Chapter 6 (skim)

Recommended
Wasserman and Faust, Chapter 7-8
Valente Chapter 7, 9
*Jackson, Chapters 1-3.
Jackson Chapter 11

# Buskens and van de Rijt. Dynamics of Networks if Everyone Strives for Structural Holes. AJS 2008


# Saramaki et al. Persistence of social signatures in human communication, PNAS 2014

**Week 5 (Feb 17)**

Empirical Models of Network Formation

Required


Fletcher, Ross, and Zhang (2013), Determinants and Consequences of Friendships. NBER Working Paper

Recommended


# Goodreau et al. Birds of a Feather or Friend of a Friend? Demography 2009

**Week 6 (Feb 24)**

Empirical Effects of Social Networks: Problems and Solutions

Required:

Jackson Chapter 8, 13


Recommended

**Week 7 (March 2)**
Policy: Social Multiplier, Aggregation and Key Player
Maybe: experiments on networks

Required:
Jackson Chapter 9

Recommended
David Card Multiple Equilibria

**Week 8 (March 9)**
One-on-One meetings
**Week 9 (March 16)**

Applications: Labor Markets, Weak Ties

Required:
Jackson Chapter 10
Granovetter (1973): The Strength of Weak Ties, American Journal of Sociology 78, pp. 1360-1380

Recommended
#Moneyball for Academics: Network Analysis for Predicting Research Impact
Bayer, Ross, and Topa

Lehrer Labor Markets and Networks

#Schmutte. Free to Move? A Network Analytic Approach for Learning Limits to Job Mobility. Labour Economics

**Spring Recess: March 23**

**March 30—Class Cancelled**

**Week 10 (April 6)**

Applications: Epidemics, Diffusion and Transmission

Required
Kleinberg Book Chapter: Epidemics
Jackson Chapter 7
Valente Chapter 10

Recommended:
Lazar et al. Google Flu Trends Still Appears Sick

**Watch:**
Diffusion of Innovations by Dr. Tom Valente
[https://www.youtube.com/watch?v=ZG9dAIBd4xQ](https://www.youtube.com/watch?v=ZG9dAIBd4xQ)
[https://www.youtube.com/watch?v=mVVGTe2bJM](https://www.youtube.com/watch?v=mVVGTe2bJM)
[https://www.youtube.com/watch?v=ZG9dAIBd4xQ](https://www.youtube.com/watch?v=ZG9dAIBd4xQ)
Nicholas Christakis: How social networks predict epidemics
**Week 11 (April 13)**

Applications: Sexual Networks

Required:
Fletcher and Yakusheva ReStat 2015

Recommended:
Watts Chapter 6

**Week 12/Week 13 (April 20, April 27)**
Student Presentations

**May 4: Class Cancelled**

*Final Paper Due:* May 4, email to instructor by 5pm.
COURSE ENVIRONMENT AND ACADEMIC INTEGRITY/MISCONDUCT

Students are encouraged to discuss course material and content with each other. However, unless otherwise indicated, assignments should be representative of their own work. Please refer to this website on student misconduct:
http://www.wisc.edu/students/saja/misconduct/misconduct.html

Policy on Non-Discrimination

The UW–Madison is committed to creating a dynamic, diverse and welcoming learning environment for all students and has a non-discrimination policy that reflects this philosophy. Disrespectful behaviors or comments addressed towards any group or individual, regardless of race/ethnicity, sexuality, gender, religion, ability, or any other difference is deemed unacceptable in this class.

Policy on Special Needs or Disabilities

I wish to fully include persons with special needs or disabilities in this course. Please let the instructor know if you need any special accommodations in the curriculum, instruction, or assessments of this course to enable you to fully participate.

Civility Policy

Members of the University of Wisconsin-Madison community are expected to deal with each other with respect and consideration. The civility policy for this course promotes mutual respect, civility and orderly conduct among the faculty, teaching assistants, and students. We do not intend this policy to deprive any person of his or her right to freedom of expression. Rather, we seek to maintain a safe, harassment-free work-place for the students, faculty, and teaching assistants. Positive communication is encouraged and volatile, hostile, or aggressive actions and language will not be tolerated. If the civility policy for this course is violated, then the individual is subject to removal from the class and possibly the course altogether. In addition, the proper authorities at the UW Departmental, School, and University levels will be notified of such behavior accordingly and further action may be taken if necessary.