

Sociology 380: Social Network Analysis

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INTRODUCTION

Social networks is one of the fastest growing sub-areas within the discipline of Sociology. Literature reviews indicate that social network publications are growing exponentially (an abstract and title search of “social network” in Sociological Abstracts identified over 500 published journal articles in the year 2000 alone). In this course, students will learn new theory, new methods, and have the opportunity to conduct original sociological research.

Students will be provided with the opportunity to master the major concepts of social network theory and to become competent in social network analysis. This is one of the only sub-areas of Sociology that has a body of theory accompanied by a distinct methodology. Social network theory concerns the ways in which individuals, groups, and organizations are tied together by interaction patterns, common members, and resource flows.

Social network analysis differs from conventional Sociology where the individual is the primary unit of analysis (survey researchers, for example, are often interested in the impact that one’s educational attainment, gender, race, etc. have upon one’s attitudes and behaviors). When studying social networks, the unit of analysis is the *relationship* between actors. Relations are not the properties of individual actors, but of systems of actors. Network analysts study the quality and quantity of ties of key individuals (ego networks) or populations (complete networks).

Course Objectives

This course is designed to provide students with the opportunity to master the major concepts within the field of social networks. Social network theory should be of interest since it explains how our connections to other individuals, to organizations, and to major social institutions influence our actions and attitudes.

I intend for students to acquire knowledge of the sociological research process, become proficient with social network analysis software packages, and gain competence in reporting and interpreting network data. The network analysis portion of the course will increase students’ general computer literacy, data analysis, data reporting, and data interpretation skills.

Through our readings, class discussions, writing assignments, and lab exercises, students will enhance their sociological imaginations, sharpen and gain critical thinking skills, increase their ability to comprehend research publications, and execute an original research project from start to finish.

COURSE REQUIREMENTS

Prerequisites

SOC 100J, SOC 210EW, and SOC 307D or permission of instructor.

Format

This course has been designed as a seminar, not a lecture class. All members of the class share responsibility for being active participants. Occasionally, I may deliver a traditional lecture. For the most

part however, we will be discussing the readings as a class. As we get to the end of the course, each student will present aspects of their research projects to the class for our feedback. This is an advanced course—there are no quizzes or exams.

Readings

There are two required books for this course that are available at the bookstore. Additional readings will be available only via Internet download (in .pdf format) from the Blackboard course site (Note that the Scott book is also available from Blackboard if you prefer not to purchase it). The books are:

- Albert-Laszlo Barabasi *Linked* (2002) Plume.
- John Scott *Social Network Analysis: A Handbook* 2nd Edition (2000) Sage.

The readings are the core of this course and on-time completion of this material is critical to having a successful experience here. Students will be using aspects of each of the readings in their final research project. I encourage you to take notes and study these readings holistically. You want to make sure that you are able to summarize the chapters and to engage the key concepts. Throughout the semester students will be required to submit Analytical Summary and Question (ASQ) assignments that pertain to the readings (see below).

The reading schedule is provided below. You need to have read and be prepared to discuss and engage the readings in class on the day in which they appear in the schedule. Snow Day Policy: In the event that class is canceled, you are still responsible for having completed the scheduled readings by the date indicated in the schedule. Any revisions to this schedule will be announced via the Blackboard web site and/or by email.

Other Required Materials

In addition to the books, there are three other requirements: 1) a functioning USM login name and password, 2) a USM Card with at least \$2 of value added on it, and 3) some file storage method (a USB flash drive or Zip disk is highly recommended).

1) If you are not a regular user of USM computer resources, you must request a USM login name and activation key in person at the help desk in the computer lab (144 Luther Bonney Hall). You will be required to have photo identification with you. Those of you who do regularly use your USM email or the Blackboard system should be able to login to the laboratory computers without a problem. You will be required to use your login name and password repeatedly throughout the semester, beginning with the first class. If you do not take care of this immediately you will not be able to participate in our lab sessions.

2) All USM computer laboratories are now charging a fee of 4 cents per page to print. You must have an official USM Card with a few dollars of value added on it. You will be required to print data output as part of your lab exercises.

3) We will be working with Windows-based PC computers regularly in this course. The Portland computer lab has machines equipped with the necessary software: SPSS and UCINET VI. This lab has very accommodating hours of operations. We will be working as a class in a USM classroom computer lab during most of our class meetings. Please respect USM's computer facilities and their regulations. When you work in any lab you will need to save your files to a disk. As always, save regularly when you are working in a lab! You will not be able to store any files on the hard drives of the laboratory computers. You are required to bring a disk with you to every class in which we meet in the Luther Bonney Hall 202 classroom lab.

Analytical Summary and Question (ASQ) Assignments

Students will be required to submit typewritten ASQ assignments seven times throughout the semester (see Schedule below). For each of the assigned readings for the day, students need to provide a summary. This should be an overview of each reading that includes definitions of key terms and the author's major

arguments. All of these readings concern the form or impact of networks. Many hypotheses and research findings will be presented. You will be using this material to help guide your own research project. Pay particular attention to key terms and any explicit or implicit hypotheses about the form or impact of networks. Your assignment should provide a summary and conclude with a question. Students will present their questions to the class and they will serve as a basis for discussion. These assignments are not about your reaction or opinion of the readings, but are intended to help you digest the major contributions from each author. I anticipate that these assignments will be a minimum of 2-3 typewritten pages each.

ASQ assignments comprise 28% of your final course grade (seven ASQs @ 4% each). The assignments will be graded on a 10 point scale. You must turn in your typewritten ASQs to me in person during class. Attendance is mandatory and no late assignments will be accepted.

Lab Exercises

Seven lab exercises will be given throughout the semester. These assignments are intended to familiarize you with the software packages we will be employing throughout the course of the semester: SPSS, UCINET VI, and NetDraw. We will be analyzing a variety of data sources and ultimately you will be analyzing your own original network data.

Lab exercises comprise 21% of your final course grade (seven exercises @ 3% each). The assignments will be graded on a 10 point scale. You must turn in your typewritten lab exercises to me in person at the beginning of class. Attendance is mandatory and no late assignments will be accepted.

Research Project

This course will culminate with an original research project that is to be conducted over the last six weeks of the semester. I have broken up the research project into five stages. For each of these five stages you will turn in that portion of the project and present it to the class as a whole. Class presentations will provide you with valuable feedback for your final, completed research project. These will be “roundtable” presentations, you will not be addressing the class from the front of the room. You will need to provide each member of the class with photocopies of the material you are presenting, so plan accordingly.

The topic of your project is open, you must choose something that is of interest to you. This project should be on your mind throughout the course of the semester. As we complete our readings, think about whether you would like to test particular hypotheses or replicate previous studies. You will be collecting your own original network data, so be pragmatic about what is feasible. At a minimum, the data you collect must contain at least ten nodes and fifteen ties. Nodes may be anything from people to organizations to nations. The topic should be broadly “social” however. The network you study can be a complete network or an ego network(s). As you will learn, networks are everywhere, so use your imagination in this project and be certain to keep in mind the data collection implications. Feel free to consult with me throughout semester about any aspect of this project.

Each of the five stages of the research project is worth 5% of your final course grade. Your completed research project is worth an additional 26% of your final course grade. Due dates are provided in the schedule below. You are responsible for conducting your own literature review corresponding with your topic. I encourage you to use citations from our course readings. There are several journals dedicated to social network analysis. The best place to begin is with the International Network for Social Network Analysis at: <http://www.insna.org/>. They have several links to journals including two that are online: *Connections* and the *Journal of Social Structure*. *Social Networks* is the premier network journal. USM has a partial electronic subscription: from campus machines you can access the past year’s worth of articles. Plan accordingly, you may need to interlibrary loan readings for this assignment.

Your research topic is due first. This will serve as the introduction to your research project. Here you want to introduce to the reader the phenomenon that you are planning to study. Provide the reader with

some background information about the subject (previous research, the extent or importance of the subject, etc.). You need to cite and engage a minimum of three scholarly references for this portion of the assignment. You may not use any of our course readings, you must locate your own. Most importantly, you are describing your research topic to the reader. You may wish to phrase a research question.

Your literature review is due next. Here, you need to cite and engage a minimum of four scholarly references (and again you cannot use our course readings). A literature review does two things: it reviews the previous research on the topic and it introduces the theoretical foundations for the hypothesis or hypotheses that you will be testing. If you want to study men and women's interaction patterns, then cite some literature on gender that supports your notion that men and women should have different interaction patterns. Also, review any previous research on this subject. Previous research will not always exist. In many cases you will have to rely on studies that are "close" to what you plan on studying.

Your data collection instrument is due next. How are you going to collect your data? Reference methodological literature as necessary. If you are administering a survey, you must create the questionnaire. If you are using unobtrusive observation as a technique, then create a coding sheet. If you are using archival or published evidence, then describe your sampling procedure and data collection strategy (a coding sheet may also need to be created). Given the great variety of network data, there is a great variety of data collection strategies. In your presentation, we need enough of the details of your data collection strategy to assess its potentiality.

Your raw data is due next. Come to class with copies of your surveys, coding sheets, etc. We want to see the raw data that was collected. Suggestions about how to organize your data for analysis will be provided.

Your research findings are due next. You are required to bring a sociogram of your network(s) as well as univariate statistics and other network measurements that are pertinent to your study. Make copies of your computer output so we can go through it as a class and assist you in making sense of your findings.

Finally, the completed research project is due. You will be combining the five stages of your project into a single paper and adding findings, interpretations, implications, and conclusion sections to your project. Details regarding the formatting and organization of the project will be provided later in the semester.

Grading

Incomplete grades will not be granted unless there are exceptional circumstances. Your final course grade will be comprised as follows:

Seven ASQs @ 4% each	28%
Seven Lab Exercises @ 3% each	21%
Research Topic and Presentation	5%
Literature Review and Presentation	5%
Data Collection Instrument and Presentation	5%
Raw Data and Presentation	5%
Research Findings and Presentation	5%
Completed Research Project	26%

Blackboard

An online Blackboard course web page exists at: <http://www.courses.maine.edu/>. Many of your course readings will be distributed here. Please note that .pdf files usually take quite some time to print and that the campus computer laboratories charge 4 cents per page, so plan accordingly. At this web page you will also be able to check your grades and send messages to your fellow classmates. Course announcements and any supplemental materials will also be posted at this site. There is a toll-free assistance line and online tutorials to provide help should you experience any difficulties with the system.

Accommodation Needs

If you need course adaptations or accommodations because of a disability, please make an appointment with me as soon as possible. At any point in the semester, if you encounter difficulty with the course or feel you could be performing at a higher level, please meet with me. There are a number of academic support services available on campus including Academic Support Center (242 Luther Bonney, 780-4470, for help with writing, time management, or general study skills), Office of Academic Support for Students with Disabilities (237 Luther Bonney, 780-4706) and the Counseling Center (106 Payson Smith, Portland, 780-4050 or 110 Upton Hall, Gorham, 780-5411).

SCHEDULE (readings are underlined and due on the date on which they appear)

Day	Readings B = Barabasi, S = Scott, * See Below	Activities
1/24	E* and B pgs 1-40	Introductory exercise; Discussion of Readings; SPSS Lab Session – Exercise 1 Ego Network Characteristics
1/31	S pgs 1-62 and B pgs 41-64	ASQ 1 Due; Lab Exercise 1 Due; Discussion of Readings; SPSS Lab Session – Exercise 2 Ego Network Outcomes
2/7	S pgs 63-81 and B pgs 65-122	ASQ 2 Due; Lab Exercise 2 Due; Discussion of Readings; UCINET Lab Session – Exercise 3 Univariate Statistics and Network Density
2/14	S pgs 82-99 and B pgs 123-178	ASQ 3 Due; Lab Exercise 3 Due; Discussion of Readings; UCINET Lab Session – Exercise 4 Measures of Centrality
2/28	S pgs 100-122 and B pgs 179-238	ASQ 4 Due; Lab Exercise 4 Due; Discussion of Readings; UCINET Lab Session – Exercise 5 Paths and Cliques
3/7	BF* and C*	ASQ 5 Due; Lab Exercise 5 Due; Discussion of Readings; UCINET & NetDraw Lab Session – Exercise 6 Sociograms
3/14	G* and Bu*	ASQ 6 Due; Lab Exercise 6 Due; Discussion of Readings; UCINET & NetDraw Lab Session – Exercise 7 Sociograms with Attributes
3/21	L1* and L2*	ASQ 7 Due; Lab Exercise 7 Due; Discussion of Readings; UCINET & NetDraw Lab Session – Software Review and Skills Building
4/4	Literature on your topic	Research Topics Due – Class Presentations
4/11	Literature on your topic	Literature Reviews Due – Class Presentations
4/18	Methodological Literature	Data Collection Instrument Due – Class Presentations
4/25	None	Raw Data Due – Class Presentations
5/2	None	Research Findings Due – Class Presentations
5/9	-	Research Project Due in Sociology Office (120 Bedford) by 4pm

* Many of the course readings will be distributed as PDF files via Blackboard only: E* = Erickson's "Social Networks: The Value of Variety"; BF* = Borgatti and Foster's "The Network Paradigm in Organizational Research"; C* = Collins' "Network Analysis"; G* = Granovetter's "The Strength of Weak Ties"; Bu* = Burt's "Structural Holes versus Network Closure as Social Capital"; L1* = Lin's "Building a Network Theory of Social Capital"; L2* = Lin's "The Theory and Theoretical Propositions"