

# An Introduction to Social Networks<sup>\*</sup>

SOC/FAS 294 (Course # 83332/83301)

Durham Language & Literature Bldg, Room 60

Autumn 2011 T, Th 9.00-10.15am

<http://www.public.asu.edu/~jadams27/courses/294/>

**Professor:** jimi adams, PhD

**Office:** Social Sciences Building, 203C

**Office Hours:** T,Th 10:30-11:30am  
or by appointment

**Email:** [jimi.adams@asu.edu](mailto:jimi.adams@asu.edu)

## Course description

Networks are everywhere. And more importantly, they matter. Recently, academics, policy makers, entrepreneurs, and the general public have taken notice of the presence and importance of networks in daily life. Often, networks are evoked as a metaphor for explaining the connections observed between events. Less frequently, people attempt to explain how and why networks form, and why they do so in the ways they do.

We will explore a portion of the vast scholarship on social network analysis (SNA), through a series of readings grouped together to describe (a) basic network concepts, (b) methods for studying those concepts and (c) empirical examples. Since networks are used to study a wide-range of phenomena, this course will reflect only some of that diversity, and we will cover topics (among others) including popular music, the internet, infectious diseases, gang murder and global trade.

By the end of the course you should be able to:

- (1) describe several prominent network-related research findings;
- (2) use standard language to describe common patterns observed within networks;
- (3) explain the primary theoretical perspectives underpinning SNA; and
- (4) comprehend some of the basic measures used to describe and analyze networks.

## Required reading

1. Watts, Duncan. 2004. *Six Degrees: The Science of a Connected Age*. New York: W.W. Norton & Co.
  2. Knoke, David & Song Yang. 2004. *Social Network Analysis*. (2<sup>nd</sup> Edition) Thousand Oaks, CA: Sage.
  3. Golding, William. 1954. *Lord of the Flies*. (any edition)
- Additional readings will be available on the course Blackboard.

A Note about Reading: Some of the assigned readings will include concepts beyond the scope of this course. As such, an additional goal of the course will be for you to learn to read and evaluate evidence in scientific research without the necessary skills for thorough interpretation. Your aim will be to extract the essential arguments or key findings from an article, without getting bogged down in the details of the research. We will discuss strategies for this at the beginning of the course. If you are finding this to be a difficult process in your reading of course materials, please take advantage of office hours to explore alternative strategies with the instructor.

## Course Requirements

With this course organized as a survey of many different research areas, the central aim is to develop your ability to learn the basics of a single perspective and explore its application to a wide range of questions. You are expected to read all assigned materials *before* the class they are covered. While participation in the class

---

<sup>\*</sup> This syllabus benefited greatly from syllabi for similar courses taught by James Moody (Duke University) and Matthew Salganik (Princeton University), and helpful input from Bernie Hogan (University of Oxford). I would like to acknowledge their important input in developing this course.

will be mandatory, you will have many options to determine what form your participation takes. Grading will therefore incorporate the participatory nature of this course directly and indirectly.

**Exams (200 points total, 100 each):** The course will include two in-class exams, each worth 75 points consisting of a variety of question formats. The exams will cover material from lectures and course readings. The first exam will be administered in class, and the second during our assigned final exam period.

**Reading Responses (150 points total; 50 each):** Along with the reading that you do for this course, you will be required to submit three (3) reading responses during the semester. Each reading response will be worth up to 50 points. These will consist of brief summaries of the essential arguments of a reading and critical analysis of the research, totaling 2½ -3 pages each. If you are not satisfied with the grade you earn on your first reading response, I will accept a fourth response, and you can discard the score for the first response, however *this option can only be used to replace the grade for the first response you write*. Reading Response requirements are described in further detail on a separate handout. At least one of your reading responses must be completed *before* the first exam.

A Note on Written Assignments: For your reading responses, all papers must be typed, double spaced, 11 or 12 point New Times Roman font. All papers must be stapled (please NO folders, binders, etc.), on white paper. All references must be properly cited with full in-text *and* bibliographic information (see handout available on Blackboard). Please provide a cover page for each of these assignments, and do not include your name anywhere else in the paper or page numbers. All writing should be spell-checked and carefully proofread before submission.

**Class Participation (100 pts):** There will be a great deal of discussion in this class. The first portion of your grade will reflect a variety of options intended to reflect/encourage your participation in this discussion. There are numerous ways to earn participation points, and you can choose *any combination* (within specified limits) of the following to amass *no more than* 100 participation points.

- 1- Email questions (3 pts each) – You can email questions pertaining to assigned readings that reflect a basic understanding of the reading(s) addressed. These questions are due *no later than* midnight the night *before* the reading will be covered in class. No more than one question is accepted for credit per student per class day. (*maximum of 40 pts*)
- 2- Class Discussion Board Posts (6 pts each) – Using the Discussion Boards available on Blackboard, you will produce original contributions that apply in-class concepts to events you encounter outside of class. Beginning with a brief description of current events (from the news, personal observation or other sources), your discussion board posts should address how those events relate to concepts covered in class. To receive full credit, your posts must demonstrate an understanding of the applied concept(s) and describe how those concepts are represented, help interpret, or otherwise relate to the chosen event. Earned points will be based on how accurately you apply the concepts to the observed event. *You will not receive credit for an event that has been previously described in a discussion board post by one of your classmates*. The deadline to receive points for blog posts is November 23<sup>rd</sup>. (*maximum of 50 points*)
- 3- Class Discussion Board Reactions/Responses (3 points each) – Thoughtful reactions to your classmates posts are encouraged. These may take a variety of forms, including (but not limited to) alternate observations that either support or contradict those presented in the original post, additional interpretation of the same event applying other concepts introduced in class, or reinterpretation of the same findings. The deadline to receive points for blog reactions is November 23<sup>rd</sup>. (*maximum of 30 points*)
- 4- Random quizzes (5 pts each) – In class quizzes will briefly cover (in multiple choice, fill in, or matching format) the readings or previous class discussions. Six to eight quizzes will be offered

during the semester. The majority of the quizzes will be unannounced and will take place at the *beginning of class*.

- 5- In-class writing (3 pts each) – Periodically at the *end of class*, I will ask you to write a brief reaction to the day’s material and/or discussion. These will not be graded for content, but for the presence of thoughtful contributions.
- 6- Perfect attendance (12 pts) – If you have perfect attendance in class you will receive 15 participation points. I will not take class attendance; this will be determined by you having turned in (regardless of the grade) *all of* the quizzes and in-class writings.
- 7- Near perfect attendance (8 pts) – Same as #6, with one missing grade.

**A Note on Participation:** The topics of study in this course will at times touch on personal and/or controversial issues. Your thoughts and opinions in discussing these topics will be valued and respected. To foster this, the following ground rules will apply for all in-class *and* online interactions:

- 1- Be respectful of others and their opinions. While healthy debate will be constructive in the learning process, disrespectful or insulting contributions *will not be tolerated*.
- 2- The content of your expressed *opinions* will in no way affect your grade. You are encouraged to share your *thoughtful* opinions, beliefs, values openly. The class will particularly benefit from statements that support and/or challenge both those of other students and the instructor (*as long as it is done in a manner consistent with rule #1*).

### **Course Grading**

---

*A Note about Grading* – The goal of this course is to introduce you to the field of social networks while giving us the opportunity to learn together. While I attempt to be extremely flexible in the way that grades can be earned, I will not spend my time giving students extra opportunities to gain points beyond what is described in the syllabus. My desire is that grades are of a secondary concern in this class, while I am aware that they are probably your first priority. As a result I have tried (to some degree) to give you the chance to tailor your grade for the course to your desires and expectations. I will make every effort to return all graded materials to you as quickly as possible.

**Grade Calculation:** Your final grade will be determined by summing the number of points earned from each of the above categories.

#### **Potential Points:**

Exam 1	100 (22.2%)	Participation	100 (22.2%)
Exam 2	100 (22.2%)	Reading Responses	150 (33.3%)
		<b>Total</b>	<b>450 (100%)</b>

Letter grades will be awarded according to your accumulated point totals as follows:

<u>Letter Grade</u>	<u>Points Range</u>	<u>Letter Grade</u>	<u>Points Range</u>	<u>Letter Grade</u>	<u>Points Range</u>
A+	437-450	B+	392-404	C+	347-359
A	419-436	B	374-391	C	315-346
A-	405-435	B-	360-373	D	283-314

*Any student accumulating 282 or fewer points will receive an E for the course.*

### **Course Policies**

---

#### ***Late Work***

**Reading Responses, Quizzes, Email Questions, In-Class Assignments:** Under *no* circumstances will late work be accepted for the reading responses or any participation. Because there are numerous opportunities to meet

each of these requirements they are all due *at the beginning of class on the day* for which the corresponding reading is listed on the syllabus, or as described on any corresponding assignment handouts.

Exams: Students who miss an exam must contact the instructor IMMEDIATELY to make arrangements for a make-up exam. Any make-up exam will consist of a series of (8-10) essay questions intended to cover similar material to what is included on the corresponding exam. Missing an exam is highly discouraged.

**Course Blackboard**

Blackboard will be used for online communication in this course. You should use this service to your advantage. You can find a copy of the syllabus and all assignments there. I will also post any lecture notes *after* each class. All additional readings will be available via blackboard. I strongly encourage you to make visits to this resource a regular part of your preparation for this course.

**Academic Integrity**

Any student caught cheating on an examination, or plagiarizing any written assignments (from published sources or another student) will receive a zero for that portion of their grade, and the assignment will not be eligible for make-up. Students caught cheating more than once will receive an E for the course, and I will write a letter to the Dean regarding the student’s dishonest behavior to be placed in the student’s academic record.

**Students with Disabilities**

Accommodations will be made for students with documented disabilities. Please let me know your arrangements with the Disability Resource Center (DRC) as soon as possible.

**Tentative Course Schedule**

---

*Please Note, this schedule is subject to change – all changes will be announced in class.*

Reading Abbreviations: 6°-Watts, KY-Knoke & Yang, LotF-Golding, BB-Blackboard

<b>Day</b>	<b>Topic</b>	<b>Readings Due</b>
<b>Week 1</b> Th, 18 Aug	<b>Part 1 – Background</b> Introductions	None
<b>Week 2</b> T, 23Aug	Terms and Definitions	6° (preface) KY 4.1
Th, 25Aug	Kevin Bacon, Paul Erdős & HIV	6° (ch 1-2)
<b>Week 3</b> T, 30 Aug	What are “Small Worlds”?	BB Milgram 1967 6° (ch3)
Th 1 Sept	Counting Friends, Unknowns and Unknowables	BB Feld 1991 – <i>or</i> – BB Zheng 2006 – <i>or</i> – BB Heckathorn 2001
<b>Week 4</b> T, 6Sept	<b>Part 2 – Studying Networks</b> Gathering Network Data	KY 2-3 (focus on 2.1, 3.1, 3.2, 3.4)
Th, 8 Sept	Facebook.com as Network Data	BB Lewis 2008
<b>Week 5</b> T, 13 Sept	Difficulties with Data	BB Bearman 2004b – <i>or</i> – BB Killworth 2006
Th, 15 Sept	Affiliation Networks	KY 5.3 6° (p. 118-129)

<b>Day</b>	<b>Topic</b>	<b>Readings Due</b>
<b>Week 6</b> T, 20 Sept	<b>Part 3 – Network Measurement</b> Density & Holes – Gaining an Upper Hand	KY 4.3 BB Burt 2001
Th, 22 Sept	Establishing a Political Dynasty	BB Padgett 1993
<b>Week 7</b> T, 27 Sept	Centrality – Who is “important”?	KY 4.4
Th, 29 Sept	Who Wins/Is Nominated for Academy Awards	BB Rossman 2008
<b>Week 8</b> T, 4 Oct	Homophily, Transitivity, etc. – Racial Segregation in Adolescent Friendships	BB Moody 2001
Th, 6 Oct	Review	BB Borgatti 2008
<b>Week 9</b> T, 11 Oct	<b>Exam 1 – In Class</b>	
Th, 13 Oct	How does Music Become Popular?	BB Salganik 2006 & 2008
<b>Week 10</b> T, 18 Oct	Gangs	Papachristos 2009
Th, 20 Oct	<b>Part 4 – Network Patterns</b> Clustering & Search in Networks - Terrorism	6° (ch 5) KY 4.5 BB Krebs 2002
<b>Week 11</b> T, 25 Oct	The Strength of Weak Ties	BB Granovetter 1973
Th, 27 Oct	Degree Patterns	6° (p.101-118) BB Barabasi 1999
<b>Week 12</b> T, 1 Nov	Sexual Networks	BB Bearman 2004a
Th, 3 Nov	Epidemics & Failures	6° (ch 6) BB Liljeros 2001 BB Moody 2007
<b>Week 13</b> T, 8 Nov	Flex Day	TBD
Th, 10 Nov	Equivalence	KY 4.6 & 5.1
<b>Week 14</b> T, 15 Nov	How is the World City System Organized?	BB Alderson 2004
Th, 17 Nov	Innovation, Adaptation & Recovery	6° (ch 9)
<b>Week 15</b> T, 22 Nov	The Financial Collapse of 2008	BB Haldane 2009
Th, 24 Nov	<i>NO CLASS – Thanksgiving</i>	
<b>Week 16</b> T, 29 No	<i>Lord of the Flies</i>	<i>LotF</i> – all
Th, 1 Dec	<i>LotF</i> , cont’d	none
<b>Week 17</b> Th, 6 Dec	Wrap-up	6° (ch 10-11)
<b>Thursday, Dec 8 – Final Exam 7:30-9:20 am</b>		

### **Additional Assigned Readings List:**

- Alderson, Arthur S. and Jason Beckfield. 2004. "Power and Position in the World City System." *American Journal of Sociology* 109:811-851.
- Barabasi, Albert-Laszlo and Reka Albert. 1999. "Emergence of Scaling in Random Networks." *Science* 286:509-512.
- Bearman, P. S., J. Moody, and K. Stovel. 2004. "Chains of affection: The structure of adolescent romantic and sexual networks." *American Journal of Sociology* 110:44-91.
- Bearman, Peter and Paolo Parigi. 2004. "Cloning Headless Frogs and Other Important Matters: Conversation Topics and Network Structure." *Social Forces* 83:535-557.
- Borgatti, Stephen P., Ajay Mehra, Daniel J. Brass, and Giuseppe Labianca. 2009. "Network Analysis in the Social Sciences." *Science* 323:892-895.
- Burt, Ronald S. 2001. "Structural Holes versus Network Closure as Social Capital." Pp. 31-56 in in N. Lin, K. Cook and R. S. Burt. *Social Capital: Theory and Research*. Sociology and Economics: Controversy and Integration series. New York: Aldine de Gruyter. Accessed from <http://faculty.chicagobooth.edu/ronald.burt/research/SHNC.pdf> on 27Dec2009.
- Feld, Scott L. 1991. "Why Your Friends have More Friends than you do." *American Journal of Sociology* 96:1464-1477.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 81:1287-1303.
- Haldane, Andrew G. 2009. "Rethinking the Financial Network." Address to the Financial Student Association, Amsterdam. Accessed from <http://www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf> on 10July2009.
- Heckathorn, Douglas D. and Joan Jeffri. 2001. "Finding the Beat: Using Respondent-Driven Sampling to Study Jazz Musicians." *Poetics* 28:307-329.
- Killworth, Peter D., Chrisopher McCarty, H. Russel Bernard, and Mark House. 2006. "The Accuracy of Small World Chains in Social Networks." *Social Networks* 28:85-96.
- Krebs, Valdis E. 2002. "Uncloaking Terrorist Networks." *First Monday* 7(4):1.
- Lewis, Kevin, Jason Kaufman, Marco Gonzalez, Andreas Wimmer and Nicholas Christakis. 2008. "Tastes, ties, and time: A new social network dataset using Facebook.com." *Social Networks* 30: 330-342.
- Liljeros, Fredrik, Christofer R. Edling, Luis A. Nunes Amaral, H. Eugene Stanley, and Yvonne Aberg. 2001. "The Web of Human Sexual Contacts." *Nature* 411:907-908.
- Milgram, Stanley. 1967. "The Small World Problem." *Psychology Today* 1:61-67.
- Moody, James. 2001. "Race, school integration, and friendship segregation in America." *American Journal of Sociology* 107:679-716.
- Moody, James, Martina Morris, jimi adams, and Mark Handcock. 2007. "Epidemic Potential in Low Degree Networks." Unpublished manuscript. Duke University.
- Padgett, John F. and Christopher K. Ansell. 1993. "Robust Action and the Rise of the Medici, 1400-1434." *American Journal of Sociology* 98:1259-1319.
- Papachristos, Andrew V. 2009. "Murder by Structure: Dominance Relations and the Social Structure of Gang Homicide." *American Journal of Sociology* 115:74-128.
- Rossmann, Gabriel, Nicole Esparza, and Phillip Bonacich. 2010. "I'd Like to Thank the Academy: Team Spillovers and Network Centrality." *American Sociological Review* 75:31-51.
- Salganik, Matthew J., Peter Sheridan Dodds, and Duncan J. Watts. 2006. "Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market." *Science* 311:854-856.
- Salganik, Matthew J. and Duncan J. Watts. 2008. "Leading the Herd Astray: An Experimental Study of Self-fulfilling Prophecies in an Artificial Cultural Market." *Social Psychology Quarterly* 71:338-355.
- Zheng, Tian, Matthew J. Salganik, and Andrew Gelman. 2006. "How Many People do You Know in Prison?: Using Overdispersion in Count Data to Estimate Social Structure in Networks." *Journal of the American Statistical Association* 101:409-423.

**Additional Recommended Reading:**

If you would like to explore any of the topics covered in class in more detail, the following books will likely be the most useful starting places for that. Please ask the instructor for specific recommendations for the best source(s) among these for any particular topic(s) of interest.

- Carrington, P. J., J. Scott, et al. 2005. *Models and Methods in Social Network Analysis*. Cambridge, Cambridge University Press.
- Degenne, Alain and Michel Forsé. 1999. *Introducing Social Networks*. London, Sage Publications.
- Scott, J. 2000. *Social Network Analysis: A Handbook*. London, Sage Publications.
- Wasserman, S. and K. Faust. 1994. *Social Network Analysis: Methods and Applications*. New York, Cambridge University Press.
- Wellman, B. and S. D. Berkowitz. 1988. *Social Structures: A Network Approach*. Cambridge, Cambridge University Press.