

INTRODUCTION TO SOCIAL NETWORK ANALYSIS (27:202:652)

Professor: Andres F. Rengifo
Sessions: Wednesdays, 6:00 – 8:40 PM, HIL 124
Email: arengifo@rutgers.edu

Fall 2022
Office hours: Monday, 9-11 AM, or by appt.
Phone: (973) 353 5237

Overview

This graduate-level seminar focuses on the study of relationships between or among persons or organizations. Drawing on a long tradition of cross-disciplinary work on Social Network Analysis (SNA) we will describe the structure of these associations, its major components, measures, and patterns of stability and change. We will study network effects at the level of actors (attitudes, behavior, etc.) and groups (collective action/social movements, cohesion, etc.) and will consider contributions in terms of method and theory in sociology/criminology and beyond (health, business, political science, psychology, etc.). We also seek to cover the basics of SNA research in terms of instrument design, sampling, data collection, and simple computer-based analyses and graphs.

The first section of the course provides an overview of applications, origins, and theories supporting SNA. The second section focuses on network structure, actors, and measures. The third section maps out research on network effects and dynamics across disciplines and problems.

Objectives

By the end of the course, students should (1) know the most important theories and ideas that anchor network research in the social sciences , (2) be able to collect and analyze basic social network data and, (3) be able to integrate insights from social network theory./research with more conventional approaches to structure and behavior.

Prerequisites and format

Given that this is an introductory course, no prior knowledge of SNA is OK (this also applies to R or UCINET). In fact, the course has no pre-requisites. However, some familiarity with graduate-level probability and statistics is assumed. It is also expected that students have basic knowledge of social theory and/or criminology.

This class has a reading load of approximately 100-150 pages per week. Class time consists of a combination of lecture, discussion, and a student-led reaction to the readings. All classes will take place in Hill Hall 124 unless otherwise noted (see class program, pp. 3-7).

Grading

Your final grade will be based on your scores for the oral presentation of a supplementary reading, two take-home assignments, a final term paper, and class participation (attendance, contributions to class discussion). The distribution of points is as follows:

In-class presentation (supplementary reading)	20
Assignments (2)	30
Term paper	40
Participation	10
Total points	<u>100</u>

The grading scale is as follows: A=90-100 B+=86-89.9 B=80-85.9 C=70-79.9 F=69.9 or lower

In-class presentation: Each student will prepare a 20-minute oral presentation that will summarize one of the supplementary readings. Students can use handouts, slides or any other support material aimed at triggering discussion, highlighting key fragments from the reading, and integrating themes across all sessions-related materials (20 points).

Take home assignments: Students will complete two take-home assignments aimed at preparing and expand lab-based sessions. These assignments will combine simple SNA data collection/data entry and estimation routines with more substantive questions. Assignments will be distributed and collected on Canvas. Late submissions will not be accepted. (30 points).

Term paper: The final term paper is due on December 18 (5:00 PM via email). Students may pick one of the following options for their papers: a) [theory paper] Identify a theory of crime/deviance, map out potential SNA applications and review related empirical research. B) [empirical paper] Use secondary data analysis to examine a research question that involves the use of descriptive statistics/graphs. All papers need to be 10-12 pages all-inclusive (double-spaced, *Criminology* format). The instructor will approve paper topics and related materials (theories, datasets, etc.) by early November 2022. Late submissions will not be accepted. (30 points).

Students will present a draft version of their papers in the last regular session of the semester (Dec. 14). This presentation may rely on slides or handouts, and it should last 10-12 minutes, followed by a short Q&A session. This presentation is worth 10 points to be added to the overall term paper grade.

Participation: Students are expected to actively engage in class discussion by asking and answering questions. Therefore it is important that they do the readings, prepare substantive questions ahead of time, and think critically about the materials covered. Class participation will be assessed according to the quality and thoughtfulness of contributions (10 points).

Materials

Journal articles, book chapters, datasets and assignments will be posted on Canvas unless otherwise noted.

A. Books

**Required*

Kadushin, C. 2011. *Understanding Social Networks*. New York: Oxford University Press.

Luke, D. 2015. *A user's guide to Network Analysis in R*. New York: Springer.

**Recommended*

Small, M.L. 2010. *Unanticipated Gains: Origins of Network Inequality in Everyday Life*. New York: Oxford University Press

Freeman, L. C. 2004. *The Development of Social Network Analysis: A Study in the Sociology of Science*. Vancouver: Empirical Press.

Prell, C. 2011. *Social Network Analysis: History, Theory and Methodology*. London: Sage.

Kolaczyk, E. D., & G. Csardi. 2014. *Statistical Analysis of Network Data with R*. New York: Springer.

B. Software

The R System for Statistical Computing (download at <http://www.r-project.org/>). + statnet bundle

C. Tutorials

General: Hanneman, R. A., & M. Riddle. 2005. *Introduction to social network methods*. Riverside: University of California, Riverside (available at <http://faculty.ucr.edu/~hanneman/>)

General: <http://f.briatte.org/r/awesome-network-analysis-list>

SNA in R: https://www.youtube.com/watch?v=b_qwazJWsZE

SNA in R: https://statnet.org/trac/raw-attachment/wiki/Resources/introToSNAinR_sunbelt_2012_tutorial.pdf

Policies and expectations

Students are expected attend all lectures, to arrive on time, to have read the assigned materials prior to the session in which they will be discussed, and to participate in class discussion. Please be courteous (turn-off cell phones, refrain from talking to others/texting).

**

CLASS PROGRAM

(subject to change)

I. WARM-UP

S1. Sept. 07	Applications
--------------	--------------

Helleringer S. & H.P. Kohler. 2007. Sexual network structure and the spread of HIV in Africa: evidence from Likoma Island, Malawi. *AIDS* 21:2323-2332.

Natarajan, M. 2006. Understanding the structure of a large heroin distribution network: A quantitative analysis of qualitative data. *Journal of Quantitative Criminology* 22:171-192.

Supplementary materials:

The Economist. 2017. [Many writers try to span America's political divide. Rarely do they succeed.](#) (September 30th)

The New York Times. 2022. [Vast new study shows a key for reducing poverty: More friendships between rich and poor](#) (August 1st)

S2. Sept. 14	Intro and types of networks
--------------	-----------------------------

Kadushin, C. 2011. Ch. 1-2

Bott, E. 1957. *Family and Social Network: Roles, Norms and External Relationships in Ordinary Urban Families*. London: Tavistock. [Ch.1-3]

Slocum, L., A. F. Rengifo, & K. Carbone-Lopez. 2012. Specifying the strain-violence link: The role of emotions in women's descriptions of violent incidents. *Victims & Offenders* 7:1-29

Supplementary materials:

#Giordano P., Lonardo RA, Manning WD & MA Longmore. 2010. Adolescent romance and delinquency: A further exploration of Hirschi's "cold and brittle" relationships hypothesis. *Criminology* 48:919-946.

Shomade S & RE Hartley. 2010. The application of social network analysis to the study of trial courts. *The Justice System Journal* 31:144-163.

S3. Sept. 21	The big picture
--------------	-----------------

Durkheim, E. [1895] 1982. *The Rules of Sociological Method*. New York: Free Press. [Preface- Ch.1].
Blau, P. M., & J. E. Schwartz. 1984. *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations*. Orlando: Academic Press. [Preface - Ch. 1].
Small, M.L. 2010. *Unanticipated Gains: Origins of Network Inequality in Everyday Life*. New York: Oxford University Press [Ch. 1-2].

Supplementary materials:

#Haynie DL. 2001. Delinquent peers revised: Does network structure matter? *American Journal of Sociology* 106:1013-1057.
#Papachristos, A.V. 2011. The coming of a networked Criminology? in *Advances in Criminological Theory* 17:101-140.

S4. Sept. 28	Working with network data I (LAB)
--------------	-----------------------------------

Kadushin, C. 2011. Ch. 11.
Marsden, P.V. 1990. Network data and measurement. *Annual Review of Sociology* 16:435-63.
Breiger, R. L. 2005. Introduction to special issue: ethical dilemmas in social network research. *Social Networks* 27:89-93.

[For lab: Luke, D. 2015. Ch.2-4]

Supplementary materials:

Salganik, M.J. & D.D. Heckathorn. 2004. Sampling and estimation in hidden populations using respondent-driven sampling. *Sociological Methodology* 34:193-239.
#Adams, J. & J. Moody. 2006. To tell the truth: Measuring concordance in multiply recorded network data. *Social Networks* 29:44-58.

II. NETWORK STRUCTURE

S5. Oct. 05	Power, centrality, influence
-------------	------------------------------

Baker, W. E., & R. R. Faulkner. 1993. The social organization of conspiracy: Illegal networks in the heavy electrical equipment industry. *American Sociological Review* 58:837-60
McGloin, J.M. 2005. Policy and intervention considerations of a network analysis of street gangs. *Criminology & Public Policy* 4:607-635.
Kreager DA, Young TN, Haynie DL, Bouchard M, Schaefer DR & G Zajac 2017. Where “old heads prevail: Inmate hierarchy in a men’s prison unit. *American Sociological Review* 82: 685-718.

Supplementary materials:

#Weare, C., W.E. Loges, & N. Oztas. 2007. Email effects on the structure of local associations: A social network analysis. *Social Science Quarterly* 88:222-243.

#Kiuru, N, Burk WJ, Laursen B, Salmela-Aro K & JE Nurmi. 2010. Pressure to drink but not to smoke: Disentangling selection and socialization in adolescent peer networks and peer groups. *Journal of Adolescence* 33: 801-812.

**Assignment #1 due **

S6. Oct. 12	Cohesion, connectivity and the small world problem
-------------	--

Kadushin, C. 2011. Ch.4, 8
Gladwell, M. 1999. Six degrees of Lois Weisberg. *The New Yorker* 52-63 (Jan 11th)
Milgram, S. 1967. The small world problem. *Psychology Today* 2:60-67.
Watts, D. J. 1999. Networks, dynamics, and the small-world phenomenon. *American Journal of Sociology* 105: 493-527.

Supplementary materials:

#Curtis, R. et al. 1995. Street-level drug markets: Network structure and HIV risk. *Social Networks* 17:229-249.
#Baron, S., & D. B. Tindall. 1993. Network structure and delinquent attitudes within a juvenile gang. *Social Networks* 15:255-273.

(For fun: <http://oracleofbacon.org/>)

S7. Oct. 19	Working with network data II (LAB)
-------------	------------------------------------

Faust, K. & J. Skvoretz. 2002. Comparing networks across space and time, size and species. *Sociological Methodology* 32:267-299.

[for lab: Luke, D. 2015. *A user's guide to network analysis in R*. New York: Springer. (Ch. 7-8)].

Supplementary materials:

#Coles, N. 2001. It's not what you know – it's who you know that counts. *British Journal of Criminology* 41:580-594.
#Chattoe, E. & H. Hamill. 2005. It's not who you know: It's what you know about people you don't know that counts: Extending the analysis of crime groups as social networks. *British Journal of Criminology* 45:860-876.

**Assignment #2 due **

S8. Oct. 26	Social capital and tie strength
-------------	---------------------------------

Kadushin, C. 2011. Ch. 10
Coleman, J. 1988. Social capital in the creation of human capital. *American Journal of Sociology* 94:S95-S120
Granovetter, M. 1973. The strength of weak ties. *American Journal of Sociology* 78:1360-1380.
Rengifo A.F, & S. DeWitt. 2019. Incarceration and personal networks. Unpacking meanings and measures of tie strength. *Journal of Quantitative Criminology* 35:393-431.

Supplementary materials:

- # McPherson, M., L. Smith-Lovin, & M.E. Brashears. 2006. Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review* 71:353-375
- #Smith CM & AV Papachristos. 2016. Trust thy crooked neighbor: Multiplexity in Chicago organized crime networks. *American Sociological Review* 81:644–67.
- #Bourdieu, P. 1986. “The forms of capital” In Richardson, J. *Handbook of theory and research for the sociology of education*. Westport: Greenwood. 241-258.

S9. Nov. 02	Structural equivalence and homophily
-------------	--------------------------------------

- Lazarsfeld, Paul, & R. K. Merton. 1954. “Friendship as social process: a substantive and methodological analysis.” In M. Berger, T. Abel, & C. Page. *Freedom and Control in Modern Society*. New York: Van Nostrand. (18-66).
- McPherson, M., L. Smith-Lovin, & J. M. Cook. 2001. Birds of a feather: Homophily in social networks. *Annual Review of Sociology* 27:415-444.
- Papachristos, A.V., D. M. Hureau, & A. A. Braga. 2013. The corner and the crew: The influence of geography and social networks on gang violence. *American Sociological Review* 78:417-447.

Supplementary materials:

- #Menzel, H., & E. Katz. 1955. Social relations and innovation in the medical profession: The epidemiology of a new drug. *Public Opinion Quarterly* 19:337-352.
- #Childress, C. C., & N. E. Friedkin, 2012. Cultural reception and production: The social construction of meaning in book clubs. *American Sociological Review* 77:45-68.

S10. Nov. 09	Communities, partitions and space
--------------	-----------------------------------

- Girvan, M., & M. E. J. Newman. 2002. Community structure in social and biological networks. *Proceedings of the National Academy of Sciences* 99:7821-7826.
- Hipp, J. R., R. W. Faris, & A. Boessen. 2012. Measuring ‘neighborhood’: Constructing network neighborhoods. *Social Networks* 34:128-140.
- Browning, C. R., R. D. Dietz, & S. Feinberg. 2004. The paradox of social organization: Networks, collective efficacy, and violent crime in urban neighborhoods. *Social Forces* 83:503-534.

Supplementary materials:

- #de Cuyper, R., A. Dirkzwager, B. Volker, P. van der Laan, & P. Nieuwbeerta. 2013. Personal networks of prisoners prior to incarceration: A comparison with the general Dutch population. *Social Science Research* 42:1612-1621.
- #Feld, S. 1981. The focused organization of social ties. *American Journal of Sociology* 86:1015-1035.

**Deadline for approval of term paper option **

III. NETWORK EFFECTS

S11. Nov. 16	Action
--------------	--------

- Kadushin, C. 2011. Ch. 5

Moody, J. 2001. Race, school integration, and friendship segregation in America. *American Journal of Sociology* 107:679-716.

Salganik, M., P. Sheridan Dodds, and Duncan J. Watts. 2006. Experimental study of inequality and unpredictability in an artificial cultural market. *Science* 311:854-856.

Supplementary materials:

#King, K.M., Latkin C.A., & M.A. Davey-Rothwell. 2015. Love on lockdown: How social network characteristics predict separational concurrency among low-income African-American women. *Journal of Urban Health* 92:460-471.

#Gladwell, M. 2000. *The Tipping Point*. New York: Little, Brown and Co. [Ch.1-2].

S12. Nov. 23	Fall break (no class)
--------------	-----------------------

S13. Nov. 30	Support
--------------	---------

Lin, N., A. Dean, & W. Ensel (eds.). 1986. *Social Support, Life Events, and Depression*. Orlando: Academic Press. [Ch. TBA].

Wellman, B., & S. Wortley. 1990. Different strokes from different folks: Community ties and social support. *American Journal of Sociology* 96:558-588.

Reisig, M., K. Holtfreter, and M. Morash. 2002. Social capital among women offenders. *Journal of Contemporary Criminal Justice* 18:167-187.

Falci, C., & C. McNeely. 2009. Too many friends: Social integration, network cohesion and adolescent depressive symptoms. *Social Forces* 87:1-32.

Supplementary materials:

#Small, M.L. 2010. *Unanticipated Gains*. New York: Oxford University Press [Ch. 5-6].

#Morgan, D.L. 1989. Adjusting to widowhood: Do social networks really make it easier? *The Gerontologist* 29:101-107.

S14. Dec. 7	Diffusion
-------------	-----------

Kadushin, C. 2011. Ch.9

Strang, D., & M. W. Macy. 2001. In search of excellence: Fads, success stories, and adaptive emulation. *American Journal of Sociology* 107:147-182.

Christakis, N., & J. Fowler. 2007. The spread of obesity in a large social network over 32 years. *The New England Journal of Medicine* 357: 370-379.

Supplementary materials:

#Festinger, L., S. Schachter, & K. Back. [1950]. 1963. *Social pressures in informal groups*. Palo Alto: Stanford University Press. [Ch. 1-3]

#Fischer, C. S. 1982. *To dwell among friends*. Chicago: University of Chicago Press. [125-138]

Christakis, N.A. 2010. [How social networks predict epidemics](#). TED Talk.

S15. Dec. 14	Student presentations
--------------	-----------------------

Term paper due Dec. 18, 2022 (5:00 pm, via email)