Social Network Analysis

POL 491/591
Harrison Hall 210
Tues & Thurs 2:50 pm – 4:10 pm

Instructor:	Dr. Kevin Reuning (ROY-ning)
Email:	reunink@miamioh.edu
Course Website:	Canvas
Office:	Harrison Hall 222
Office Hours:	12 — 2 PM Tues & Thurs
Schedule appointments:	https://calendly.com/reuning

Course Description

In this course we will learn how to ask questions about, collect data on, and analyze social networks. The study of networks spans many fields, from social science to physics to mathematics. Because of this we will often move from sociological theories of why networks are important to methodological questions about how to manipulate matrices. By the end of the semester though you will be able to investigate a social network, explain what its important characteristics are, and relate it back to social theories.

Student Learning Objectives

1. Students will be able to explain and calculate important characteristics of networks.

2. Students will demonstrate skill in collecting social network data and then visualizing social networks.

3. Students will be able to identify and apply the appropriate statistical methodology to test theories on social networks.

4. Students will be able to apply network methodologies to contemporary political and social issues to identify the differences in possible solutions.

5. Students will be able to explain the role of social networks in democratic life.

Required Book

Borgatti, S.P., Everett, M.G. and Johnson, J.C., 2018. *Analyzing social networks*. Sage.

Course Policies

Respect

In this course we will learning how to test social scientific theories and evaluate public policy. At times this will require discussing issues that touch many of us personally. In these discussions our aim is to understand what the evidence implies about the world. In these discussions we will treat everyone with respect.

Preparation

This course builds on itself and so students need to come to class everyday ready and willing to learn. Most weeks we will spend one day in a lecture and another day working on assignments. On working days students are expected to bring a laptop and be prepared to actively engage in the assignment.

Technology

In the class you are expected to be focused on what is going on within the class. Laptops will be required on some days. On those days that laptops are not required you may bring one to take notes, etc. If the laptop becomes a distraction to those around you we will look at reevaluating this policy.

Email Policy

I will check email between 8am and 6pm, and will try to always respond to any contact within 24 hours. Although I do not expect formality in email communications, I do expect you to respect that emails are not a costless act.

Grade Distribution and Assignments

Item	Percentage
Weekly Homework	25%
Reading Summaries	10%
Midterm Exam	25%
Attendance	5%
Final Project	
Data Selection	5%
Draft Descriptives	5%
Final Report and Presentation	25%

Attendance

You are expected to come to class. You are given 2 unexcused absences without loss of credit. Additional unexcused absences will lead to lost points:

- 0-2 unexcused absences: 5%

- 3 unexcused absences: 4%

- 4 unexcused absences: 3%

- 5 unexcused absences: 2%

- 6 unexcused absences: 1%

- 7 or more unexcused absences: 0%

Excused absences

In accordance with Miami University policy, I must be notified in writing prior to any excused absence as a result of religious observations. These will not count against your unexcused absences. You will still be expected to complete any in-class assignments. As for unexcused absences you must contact me to received the assignment and they are due one week after your return to class.

Weekly Homework

Throughout the semester we will work on weekly homework assignments. These assignments often will require that you apply the concepts we are working on to the data at hand. Homework assignments will be due before class on Tuesday. Note, that many of the homeworks will have a graduate student only section.

Reading Summaries

You will have to summarize two articles that we read in this class. The summaries will be due prior to class, and will be less than 2 pages (double spaced) in length.

Midterm

The midterm will take place on March 16th. We will discuss details prior to the final exam.

Final Project

You will complete a final project in this course that will require you finding and analyzing data of your own choice. There will be several intermediary steps that will be due throughout the semester. More information is available on the canvas page for the final project assignment.

Late work policy

In order to receive a deadline extension you should contact me more than 24 hours before the deadline. If an assignment is turned in late without an extension but within 24 hours of the due date, your grade will decrease by 5 percentage points (a 95% would become a 90%). For every additional 24 hours after this it loses another 5%.

Online Work

In order to learn R in a hands on fashion, each week we will have an online tutorial in R. This work is NOT graded, it is solely designed to help you with the homework that will be due at the next class session.

Letter Grade Distribution

>= 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 67.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	<59.99	F

Academic Integrity

Miami University is a scholarly community whose members believe that excellence in education is grounded in qualities of character as well as of intellect. We respect the dignity of other persons, the rights and property of others, and the right of others to hold and express disparate beliefs. We believe in honesty, integrity, and the importance of moral conduct. We defend the freedom of inquiry that is the heart of learning and combine that

freedom with the exercise of judgment and the acceptance of personal responsibility.

Miami demands the highest standards of professional conduct from its students, faculty, and staff. As a community of scholars, our fundamental purpose is the pursuit of knowledge. Integrity in research and creative activities and in academic study is based on sound disciplinary practices and expectations, as well as a commitment to the values of honesty and integrity.

Any student caught committing academic dishonesty will, at a minimum, receive a 0 for the assignment at hand. For more information on academic dishonesty and potential punishments visit `http://MiamiOH.edu/integrity`.

Disability Services

If you are a student with a physical, learning, medical and/or psychiatric disability and feel that you may need a reasonable accommodation to fulfill the essential functions of the course that are listed in this syllabus, you are encouraged to contact the Office of Student Disability Services at 529-1541 (V/TTY), located in the Shriver Center, Room 304.

Course Outline

January 24 and 26 Introduction to Social Networks

Why do we care about social networks?

Granovetter, M. S. 1973. "The Strength of Weak Ties." *Journal of Sociology* 78(6):1360–1380.

January 31 and February 2 What is a social network?

Nodes, Edges and Matrices

Chapter 2

Healy, Kieran. 2013. "Using Metadata to find Paul Revere." `https://kieranhealy.org/blog/archives/2013/06/09/using-metadata-to-find-paul-revere/`

February 7 and 9 Research Design and Data Collection

How can you collect network data?

Chapter 3 and 4

Bond, Robert M., Christopher J. Fariss, Jason J. Jones, Adam DI Kramer, Cameron Marlow, Jaime E. Settle, and James H. Fowler. "A 61-million-person experiment in social influence and political mobilization." Nature 489, no. 7415 (2012): 295-298.

February 14 and 16 Data and Using R

How do we actually get data into R? What do we do once it is there?

No assigned reading, but this tutorial to statnet is a very helpful resource.

February 21 and 23 Visualizing Networks

How do you visually present networks in an actually useful way?

Chapter 7

Venturini, T., Jacomy, M. and Jensen, P., 2021. "What do we see when we look at networks: Visual network analysis, relational ambiguity, and force-directed layouts." *Big Data & Society*, 8(1), p.20539517211018488.

February 28 and March 2 Describing a Network

What can we say about a network?

Chapter 9

Hite, J.M., Williams, E.J. and Baugh, S.C., 2005. "Multiple networks of public school administrators: An analysis of network content and structure." *International Journal of Leadership in Education*, 8(2), pp.91-122.

March 7 and 9 Centrality within a Network

Data Selection for Final Project due on March 7.

Who is important within a network?

Chapter 10

Read one of:

* Faris, R. and Felmlee, D., 2011. "Status struggles: Network centrality and gender segregation in same-and cross-gender aggression." *American Sociological Review*, 76(1), pp.48-73.
* Koger, G., Masket, S. and Noel, H., 2009. "Partisan webs: Information exchange and party networks." *British Journal of Political Science* pp.633-653.
* Houghteling, Clara, and Prentiss A. Dantzler. 2019. "Taking a knee, taking a stand: Social networks and identity salience in the 2017 NFL protests." *Sociology of Race and Ethnicity*: 2332649219885978.

March 14 and 16 Review and Midterm

March 21 and 23 Spring Break

No Class

March 28 and March 30 Clusters and Cliques

Can we find relevant subgroups?

Chapter 11

Schaefer, D.R., Bouchard, M., Young, J.T. and Kreager, D.A., 2017. "Friends in locked places: An investigation of prison inmate network structure." *Social networks*, 51:88-103.

April 4 and 6 Affiliation Networks

Draft Descriptives due on Tuesday

What happens when people aren't directly connected?

Chapter 12

Singh, P.V., Tan, Y. and Mookerjee, V., 2011. "Network effects: The influence of structural capital on open source project success." *MIS Quarterly*, pp.813-829.

April 11 and 13 Networks as Spatial Dimensions

Viewing networks as way to position yourself.

Chapter 6

Harkness, S. and Super, C.M., 2001. "The ties that bind: Social networks of men and women in a Kipsigis community of Kenya." *Ethos*, 29(3), pp.357-370.

April 18 and 20 Testing Hypotheses

A large set of options.

Chapter 8.1 to 8.5

Read one of:

* Kasper, Claudia. and Mulder, Monique Borgerhoff, 2015. "Who helps and why? Cooperative networks in Mpimbwe." *Current Anthropology*, 56(5), pp.701-732.
* Shah, Priti Pradhan, 1998. "Who are employees' social referents? Using a network perspective to determine referent others."*Academy of Management Journal*, 41(3), pp.249-268.

April 25 and 27 Exponential Random Graph Models

Modeling network generation

Chapter 8.6 & 8.7

Read one of:

* Ready, Elspeth. and Power, Eleanor.A., 2018. "Why wage earners hunt: food sharing, social structure, and influence in an Arctic mixed economy." *Current Anthropology*, 59(1), pp.74-97.
* Masket, Seth. and Shor, Boris., 2015. "Polarization without Parties: Term Limits and Legislative Partisanship in Nebraska's Unicameral Legislature." *State Politics & Policy Quarterly*, 15(1), pp.67-90.

May 2 and 4 Work Time and Presentations

Finals Week Final Project

Additional Resources

- Howe Writing Center: `http://miamioh.edu/hcwe`

- Students also may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to call Student Counseling Service (513-529-4634). For emergencies outside of business hours, the Community and Counseling and Crisis Center (844-427-4747) has a 24-hour hotline.

- Students come to Miami from a variety of economic backgrounds. If you are having financial trouble I urge you to make use of the services available through Miami Cares Resources: `https://www.miamioh.edu/emss/offices/student-success-center/miami-cares/index.html`