

Networks and Politics (PSCI 3273)

Spring 2024

Professor Larson

Mondays and Wednesdays 2:15p-3:30p

Commons Center 335

Office Hours: Tuesdays 2:00p-3:00p

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Overview

Are segregated neighborhoods always the result of discrimination? If a revolution is brewing, how many people must the revolutionaries personally recruit in order to incite widespread revolution? How debilitating will a snowed-in BNA Airport be to national air travel? Why are all actors separated from Kevin Bacon by 6 degrees or fewer? Why did Blu-Ray dominate HD DVD and Kindle dominate the Nook?

The budding new field of Network Analysis offers the tools to answer questions like these. Network analysis is a recent import into the social sciences, and has been developed in a diverse set of fields, from physics to computer science to sociology. Recognizing that objects of study (people, genes, web pages, virus hosts, etc.) are often influenced by “neighboring” objects of study, these fields have created a paradigm and a set of tools that political scientists can use to study segregation, public opinion, learning, institutional design, the adoption of new technologies, epidemics, migration, trade, war, rebellion, protests, and various other phenomena that involve a group of people interacting.

Because network analysis has such diverse origins, mastering it requires a willingness to learn about a variety of applications, many of which are in fields outside of political science, and the creativity to bring techniques and approaches used outside of political science into the field. The blend of networks and political science covered in this course will reveal a wealth of untapped research opportunities and chances to make real contributions to the field of political science.

Since network analysis is a relatively new field, we will not be using a textbook. Instead, we will be working through a collection of papers (the bulk of which were published in the last ten years) to learn the methods and range of applications. This course assumes no background in social network analysis: we will begin with the basics and progress from there. Some of the readings can be quite technical, and some relatively short pieces may take considerable time to read through. Each week has relatively few pages of reading so that you may devote time to carefully reading the assigned pieces. That being said, I do not expect you to be able to reproduce, or even fully understand, the intricate math in some of the articles. One of the skills this course will help you to hone is the ability to extract meaning from an academic article, even if the level of technical proficiency assumed in the article is well above your own. (**Read: some articles are hard. You**

can get a lot out of them anyway.)

By the end of the course, you will have the skills necessary to explain or make predictions about real world political phenomena using network techniques. As we encounter various network models throughout the course that seek to describe or explain the world, we will focus on understanding, replicating, and improving upon the models, and on applying the models to other phenomena in political science not yet explored with a networks approach. We will also discuss strategies for empirically verifying the explanations or predictions offered by the models. Throughout the course, you will have the opportunity to explore network analysis through discussions, brief lectures, activities, short assignments, an empirical exercise, and a final research project.

Attendance, preparation and thoughtful participation are expected and are crucial to making class a valuable experience for everyone.

Requirements and their weight in the final grade

Attendance and Participation: 10%

Attendance is mandatory and thoughtful participation is expected in discussions and activities. Constructive questions count as participation.

Short Assignments: 25%

Short assignments are intended to clarify course material, offer practice in applying course concepts, and facilitate discussion. Further information about each will be provided in class. The assignment grade will include:

- 2 Problem Sets (10% total)
 - Practice with the more technical material. I encourage you to work together, but the writeup must be done individually. **Due 1/28/24 and 3/29/24.**
- 2 Concept Illustrations (10% total)
 - Original content illustrating a class concept using one of the following formats: a short (2 mins or less) video, a publication-quality figure, or a meme. Also submit a single paragraph that explains the point being conveyed in the video, figure, or meme. Can be created individually or in a group of up to three students. The groups need not be the same for both illustrations. **Due 2/4/24 and 2/25/24.**
- 2 Prospectus Feedback Memos (5% total)
 - Further instructions given in class. Short (1 page or less) memos each addressed to one other student randomly selected with feedback on final project prospectus. To be completed individually. Due by the start of the class the week that the recipient will be presenting **(4/8/24 and 4/15/24).**

Presentation: 10%

A short in-class presentation on **2/12/24 and 2/14/24**. Completed in groups of 2 or 3 students.

Network Theory Brief: 15%

A brief (up to 5 pages, double spaced) proposing a network theory. Submit as a pdf. Due **3/10/24**. Completed in groups of 2 or 3 students.

Final research project: 40%

A research paper (up to 10 pages, double spaced) completed individually and submitted as a pdf. Due electronically to the course website 11:59pm, **4/29/24**. The first step of the project will be a prospectus– a memo proposing the topic and plan for the project, due **4/3/24**. Classes on 4/8/24 - 4/17/24 will be devoted to short presentations and peer feedback on project plans.

Late policy: Each student may have one 48-hour extension on one written assignment (not the presentations), no questions asked. Simply email me to tell me you will be taking your extension and no penalty will be imposed for 48 hours past the due date. Otherwise, work will be penalized 10% of the total points for each day it is late. Exceptions for documented personal emergencies will be assessed on a case-by-case basis.

Grading scale: The course will use the following conversion of percentage of points to letters:

A	> 94%
A-	> 90%
B+	> 87%
B	> 84%
B-	> 80%
C+	> 77%
C	> 74%
C-	> 70%
D+	> 67%
D	> 64%
D-	> 60%
F	<= 60%

Academic honesty: Many of the activities will be collaborative, and I encourage you to work with one another on assignments and projects. The assignment descriptions will make clear when groups can submit work together, and when students need to write up work individually. This course will strictly adhere to Vanderbilt’s academic honesty policy. See the student handbook for details, and feel free to ask me when in doubt. Two good rules of thumb: (1) when in doubt, cite, and (2) when in doubt, write up group work in your own words.

Additional course information will be announced in class or distributed via the email list or the course website.

Schedule of Readings and Assignments (subject to change)

Week 1: Logistics and Introduction

What is network analysis? What political topics can be studied with networks? What advantages and disadvantages does network analysis have compared to other tools and paradigms available to political scientists? What do abstract network characteristics have to do with real world phenomena like pandemics, internet searches, financial markets, and scientific collaboration?

Monday 1/8/24

Nicholas A. Christakis and James H. Fowler. Chapter 1, in the thick of it. In *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives*, pages 3–32. Little, Brown, 2009.

Wednesday 1/10/24

NO CLASS

Week 2: Representing the World with Networks

What can a simple network model tell us about residential segregation and discrimination? Does segregation necessarily imply discriminatory preferences? How can this inform policy?

Monday 1/15/24

NO CLASS

Wednesday 1/17/24

Thomas C. Schelling. Sorting and mixing: Race and sex. In *Micromotives and Macrobehavior*, pages 137–166. WW Norton, 2006.

Week 3: The Variety of Social Networks

How can networks be described precisely? How can we compare two people in terms of their network position, and two groups in terms of their whole networks?

Monday 1/22/24

Jennifer M. Larson. Chapter 2: Describing and interpreting social network features. In *Designing Empirical Social Networks Research*. Cambridge University Press, Forthcoming 2024.

Wednesday 1/24/24

No new readings

1/28/24 (Sun): Problem Set 1 due electronically by 11:59pm.
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Week 4: Do Social Networks Matter?

Does the fact that a person is connected to others in a social network affect their behavior? Do people make important decisions about their health and financial wellbeing independently of one another? How can economic and public health policy harness the role that social networks play? Are all links in a network equally important and impactful?

Monday 1/29/24

Esther Duflo and Emmanuel Saez. The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *The Quarterly Journal of Economics*, 118(3):815–842, 2003.

Neel Rao, Markus Mobius, and Tanya Rosenblat. Social networks and vaccination decisions. *Working Paper*, 2007.

Wednesday 1/31/24

Mark S. Granovetter. The strength of weak ties. *American Journal of Sociology*, pages 1360–1380, 1973.

Cassy Dorff. Violence, kinship networks, and political resilience: Evidence from Mexico. *Journal of Peace Research*, 54(4):558–573, 2017.

<i>2/4/24 (Sun): Concept Illustration 1 due electronically by 11:59pm.</i>
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Week 5: How Do Social Networks Matter?

How does a person's social network affect behavior? Why does one's position in a social network have consequences for whether that person is employed, behaves cooperatively, or becomes a criminal? What role do social networks play in bank runs? Financial crises? Political campaigns? How problematic would it be to ignore the role of social networks when studying these kinds of topics?

Monday 2/5/24

Jennifer M. Larson. Chapter 4: Crafting a network theory. In *Designing Empirical Social Networks Research*. Cambridge University Press, Forthcoming 2024.

Cesi Cruz, Julien Labonne, and Pablo Querubín. Politician family networks and electoral outcomes: Evidence from the Philippines. *American Economic Review*, 107(10):3006–37, 2017.

Jennifer M Larson. Why the west became wild: Informal governance with incomplete networks. *World Politics*, 69(4):713–749, 2017.

Wednesday 2/7/24

NO CLASS

Week 6: Applying and Extending What We've Learned So Far

Monday 2/12/24

Presentations

Wednesday 2/14/24

Presentations

Week 7: How do Networks Form in the First Place?

How are links created in the first place? Why do some networks have very different shapes than others? Does the shape of a network matter? What does the network of romantic and sexual encounters of adolescents imply for the possibility of disease spread? What do the discussion networks of American voters imply about polarization and politics?

Monday 2/19/24

Albert-Laszlo Barabasi. Chapters 4-7. In *Linked*, pages 41–92. Plume, 2003.

Peter S Bearman, James Moody, and Katherine Stovel. Chains of affection: The structure of adolescent romantic and sexual networks. *American journal of sociology*, 110(1):44–91, 2004.

Wednesday 2/21/24

David Lazer, Brian Rubineau, Carol Chetkovich, Nancy Katz, and Michael Neblo. The coevolution of networks and political attitudes. *Political communication*, 27(3):248–274, 2010.

Jeffrey Lyons and Anand E Sokhey. Discussion networks, issues, and perceptions of polarization in the american electorate. *Political Behavior*, 39:967–988, 2017.

2/25/24 (Sun): Concept Illustration 2 due electronically by 11:59pm.

Week 8: How Do Things Spread through Networks?

Exactly how do ideas and behavior spread along the links in a social network? When people are trying to learn something new, do they make use of their peers, and if so, how? Are groups that are diverse as good at spreading new information as homogeneous groups? Does information spread differently in online social media than in in-person interactions? What determines how widely information spreads? Does every task best served by the same kinds of networks with the same shapes?

Monday 2/26/24

M. Mobius, T. Phan, and A. Szeidl. Treasure hunt: Social learning in the field. *Working Paper*, NBER, 2015.

Jennifer M Larson, Janet I Lewis, and Pedro L Rodriguez. From chatter to action: how social networks inform and motivate in rural uganda. *British Journal of Political Science*, 52(4):1769–1789, 2022.

Wednesday 2/28/24

Daniel Masterson. Refugee networks, cooperation, and resource access. *American Political Science Review*, pages 1–17, 2023.

M.H. DeGroot. Reaching a consensus. *Journal of the American Statistical Association*, 69(345):118–121, 1974.

Week 9: Project Work

Monday 3/4/24

NO CLASS, work on projects

Wednesday 3/6/24

NO CLASS, work on projects

<i>3/10/24 (Sun): Network Theory Brief due to course website by 11:59p</i>
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Week 10: Spring Break

Monday 3/11/24

NO CLASS

Wednesday 3/13/24

NO CLASS

Week 11: Working with Network Data

How would we go about collecting and storing information about a network we want to study? Once we've stored the network, how do we describe and analyze it?

Monday 3/18/24

Download R

Jennifer M. Larson. Chapter 8: Working with network data in r. In *Designing Empirical Social Networks Research*. Cambridge University Press, Forthcoming 2024.

Wednesday 3/20/24

No new readings

Week 12: Visualizing Networks

How can we make publication quality visualizations of networks?

Monday 3/25/24

M. Grandjean. Gephi: Introduction to network analysis and visualization. martingrandjean.ch/gephi-introduction/, 2015.

Wednesday 3/27/24

No new readings

<i>3/29/24 (Fri): Problem Set 2 due to course website by 11:59pm</i>

Week 13: New Contributions to the Field

How do researchers empirically test their network theories? How do they acquire the right data? What is an example of empirical networks research in progress? How do social networks relate to the attitudes that people hold towards outgroups such as refugees? How do networks reinforce or undermine attitude changes that experimental interventions introduce?

Monday 4/1/24

Jennifer M. Larson. Chapter 5: Moving from theory to empirics. In *Designing Empirical Social Networks Research*. Cambridge University Press, Forthcoming 2024.

Jennifer M. Larson. Chapter 6: Acquiring network data. In *Designing Empirical Social Networks Research*. Cambridge University Press, Forthcoming 2024.

Wednesday 4/3/24

Jennifer M. Larson and Janet I. Lewis. Reducing prejudice towards refugees: How social networks reinforce and unravel attitude change. *Working Paper*, 2024.

4/3/24 (Wed): Prospectus due to course website 11:59pm

Week 14: Your Contributions to the Field

Monday 4/8/24

4/8/24 (Mon): Prospectus Feedback Memo 1 due by 2:15pm

Prospectus Presentations

Wednesday 4/10/24

Prospectus Presentations

Week 15: Your Contributions to the Field

4/15/24 (Mon): Prospectus Feedback Memo 2 due by 2:15pm

Monday 4/15/24

Prospectus Presentations

Wednesday 4/17/24

Prospectus Presentations

Week 16: Final Paper Workshop

Monday 4/22/24

NO CLASS, Final Paper Workshop

4/29/24 (Mon): PDF of Final Project due to course website by 11:59pm