

Networks and Politics, Fall 2017

Professor Larson

Mondays and Wednesdays 11:00-12:15

ARC LL04

Office Hours Mondays 2-3

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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 JFK 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?

In a game of telephone in which a message is whispered from person to person, how many people must a message pass through to be distorted beyond recognition? How short must a message be to make it through five people intact? If each person heard the message from two different people instead of just one, how much clearer would the final message be?

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 five 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: 15%

Attendance is mandatory and thoughtful participation is expected in discussions and activities.

Short assignments: 20%

Short assignments are intended to clarify course material, offer practice in applying course concepts, and facilitate discussion. The assignment grade will include two problem sets (due 9/27/17 and 11/15/17 in hard copy at the beginning of class), preparation of one short presentation (to be given in class 10/16-18/17, instructions will be given in class), and 3 discussion papers. One discussion paper can be written per any class day that has readings between and including 9/27/17 and 11/27/17. For a discussion paper, craft two questions that could be posed to the class to kick off an interesting discussion related to at least one of the readings for that day. For each question, offer one potential answer. Keep the length of each discussion paper to 2 pages or less, double-spaced. You may submit up to 4; I will record the best 3 grades.

Empirical exercise: 15%

A 5-6 page memo detailing an empirical research design, due beginning of class on 10/30/17. Instructions will be given in class.

Prospectus: 5%

A 3-4 page memo proposing the topic and plan for the final research project, due by email to the class at 11:59pm on 11/27/17. Classes on 11/29/17-12/6/17 will be devoted to short presentations and feedback on project plans.

Final research project: 45%

A 12-15 page research paper. Instructions will be given in class. Due 11:59pm, 12/17/17.

Late policy: Because discussion papers are meant to facilitate discussion, no late discussion papers will be accepted. Papers (the empirical exercise, the prospectus, and the final research project) submitted after the due date and time will be penalized half a letter grade for each 24 hours past the due date. Exceptions for personal emergencies will be assessed on a case-by-case basis. Papers will receive a zero 120 hours past the due date. A paper is late if it is submitted past the due date and time, or if it submitted in an improper format.

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

Schedule of Readings (subject to change)

Week 1: Logistics and Introduction

Wednesday 9/6/17

No Readings

Week 2: Representing the World with Networks

What is network analysis? What advantages and disadvantages does network analysis have compared to other tools and paradigms available to political scientists? What can a simple network model tell us about residential segregation and discrimination? Does segregation imply discriminatory preferences? How can this inform policy?

Monday 9/11/17

N.A. Christakis and J.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 9/13/17

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

Week 3: Describing Networks

How can networks be described precisely? What do abstract network characteristics have to do with real world phenomena like epidemics, Internet searches, financial markets, and scientific collaboration?

Monday 9/18/17

M.O. Jackson. Chapter 2: Representing and measuring networks. In *Social and economic networks*, pages 20–51. Princeton University Press, 2010.

Wednesday 9/20/17

M. Newman. Who is the best connected scientist? a study of scientific coauthorship networks. *Complex networks*, pages 337–370, 2004.

Week 4: Do Social Networks Matter?

Does the fact that a person is connected to others in a social network affect his or her behavior? Do people make important decisions about their health and financial wellbeing independently of one another?

Monday 9/25/17

No Class

Wednesday 9/27/17

E. Dufflo and E. 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.

N. Rao, M. Mobius, and T. Rosenblat. Social networks and vaccination decisions. *Working Paper*, 2007.

9/27/17 (Wed): Problem Set 1 due beginning of class

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 10/2/17

N.A. Christakis and J.H. Fowler. Chapter 5, the buck starts here. In *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives*, pages 135–171. Little, Brown, 2009.

M.S. Granovetter. The strength of weak ties. *American journal of sociology*, pages 1360–1380, 1973.

Antoni Calvo-Armengol and Matthew O Jackson. The effects of social networks on employment and inequality. *The American Economic Review*, 94(3):426–454, 2004.

Wednesday 10/4/17

J.H. Fowler and N.A. Christakis. Cooperative behavior cascades in human social networks. *Proceedings of the National Academy of Sciences*, 107(12):5334–5338, 2010.

E.L. Glaeser and B. Sacerdote. Crime and social interactions. *Quarterly Journal of Economics*, 111(2):507–548, 1996.

Week 6: 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?

Monday 10/9/17

No Class; Fall Recess

Wednesday 10/11/17

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

Jennifer M Larson and Janet I Lewis. Ethnic networks. *American Journal of Political Science*, 61(2):350–364, 2017.

William J. Brady, Julian A. Willis, John J. Jost, Joshua A. Tucker, and Jay J. Van Bavel. Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences*, 114(28):7313–7318, 2017.

Week 7: Presentations

Monday 10/16/17

Presentations

Wednesday 10/18/17

Presentations

Week 8: The Importance of the Shape of Networks

Does the shape of a network matter? If someone is better connected in a network, does she have a different incentive to behave cooperatively, or a different likelihood of success as a politician? What does the network of romantic and sexual encounters of adolescents imply for the possibility of disease spread?

Monday 10/23/17

Jennifer M Larson. How the west became wild: Informal governance with incomplete networks. *World Politics*, Forthcoming 2017.

C. Cruz, J. Labonne, and P. Querubín. Politician family networks and electoral outcomes: Evidence from the philippines. *American Economic Review*, Forthcoming 2017.

Wednesday 10/25/17

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.

S. Judd, M. Kearns, and Y. Vorobeychik. Behavioral dynamics and influence in networked coloring and consensus. *Proceedings of the National Academy of Sciences*, 107(34):14978–14982, 2010.

Week 9: Networks and Protest

How do protests depend on the social networks among potential participants? When will groups with grievances experience protests? How can this be studied? What impact does social media have on protests, and how do protests grow?

Monday 10/30/17

M.S.Y. Chwe. Communication and coordination in social networks. *The Review of Economic Studies*, 67(1):1–16, 2000.

Karl-Dieter Opp and Christiane Gern. Dissident groups, personal networks, and spontaneous cooperation: The east german revolution of 1989. *American sociological review*, pages 659–680, 1993.

10/30/17 (Mon): Empirical Exercise due beginning of class

Wednesday 11/1/17

S. González-Bailón and N. Wang. Networked discontent: The anatomy of protest campaigns in social media. *Social Networks*, 44:95–104, 2016.

J. M. Larson, J. Nagler, J. Ronen, and J. A. Tucker. Social media and protest participation: Evidence from 130 million twitter users. *Working Paper*, 2017.

Week 10: Visualizing Networks

Demo of software that can be used to create custom pictures of networks.

Monday 11/6/17

No Class

Wednesday 11/8/17

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

Software demo

Week 11: Learning in Networks

When information is spreading from person to person in a network, how do people form new opinions based on it? Does the fact that friends have opinions about new products make it easier to acquire the best products? How do rumors change minds, and how does this affect how well rebel groups can form or whether civil war breaks out? How can groups be designed to be most effective?

Monday 11/13/17

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

M. J. Salganik, P. S. Dodds, and D. J. Watts. Experimental study of inequality and unpredictability in an artificial cultural market. *Science*, 311(854), 2006.

Wednesday 11/15/17

J. M. Larson and J. I. Lewis. Rumors, kinship networks, and rebel group formation. *International Organization*, Forthcoming 2017.

Thomas W Valente, Beth R Hoffman, Annamara Ritt-Olson, Kara Lichtman, and C Anderson Johnson. Effects of a social-network method for group assignment strategies on peer-led tobacco prevention programs in schools. *American journal of public health*, 93(11):1837–1843, 2003.

<i>11/15/17 (Wed): Problem Set 2 due beginning of class</i>

Week 12: Homophily v. Influence

Why do friends tend to be similar to one another? Can forced friendships change minds about race?

Monday 11/20/17

J.M. McPherson and L. Smith-Lovin. Homophily in voluntary organizations: Status distance and the composition of face-to-face groups. *American sociological review*, pages 370–379, 1987.

Greg J Duncan, Michael Kremer, Dan M Levy, and Jacque Eccles. Empathy or antipathy? the impact of diversity. *The American economic review*, 96(5):1890–1905, 2006.

Wednesday 11/22/17

No Class; Thanksgiving Break

Week 13: Network Formation

Where do links in networks come from? Would the same people in different circumstances create different social networks? Do people form their social networks strategically?

Monday 11/27/17

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

M. Fafchamps and F. Gubert. Risk sharing and network formation. *The American economic review*, 97(2):75–79, 2007.

<i>11/27/17 (Mon): Prospectus due by email to class 11:59pm</i>

Wednesday 11/29/17

Prospectus Presentations

Week 14: Your Contributions to the Field

Monday 12/4/17

Prospectus Presentations

Wednesday 12/6/17

Prospectus Presentations

Week 15: Final Paper Workshop

Monday 12/11/17

Final Paper Workshop

Tuesday 12/12/17

Final Paper Workshop

Wednesday 12/13/17

Final Paper Workshop

12/17/17 (Mon): PDF of Final Project due by email 11:59pm