Network Theory & Analysis
Dr. Shannon C McGregor
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Wednesdays | 9:45am – 12:30pm | Carroll Rm 0268\* | Zoom

\*For the foreseeable future, we will meet via Zoom. If it does at all become safe to meet in person, we can – as a class – decide whether we would like to do so.
shannonmcg@unc.edu

Office Hours: By appointment – happy to schedule Zoom meetings whenever

**COURSE DESCRIPTION**:

Social interactions shape much of what we think and do – the behaviors we see in other people, the information we receive from them. Networks are behind those – and many other – aspects of social life. Networks shine light on the sometime hidden structures of interdependence that link people, organizations, groups, and publics together. In this course, we will explore networks and relational thinking. Network analysis focuses on how connections and structural positions impact fundamental concerns in the social sciences: information flows, social capital, political coalitions, cognition, social movements, and social change. Though network analysis is not rooted in digital communication technologies, the availability of digital and social media data – as well as their profound impact on public life – have made this sort of analysis critically relevant and possible. In our course, we will focus mostly on theories and methods related to network analysis, with some forays into the ever-changing tools available to conduct network analysis. In general, we will focus on methodological principles as they far outlast the applicability of any particular software or set of commands. Our readings draw from work in sociology, political science, communication and its many subfields including journalism studies, political communication, and media studies.

**OBJECTIVES**:

* Understand the type of questions that network data and methods can answer
* Engage in relational thinking
* Assess empirical research applying network science
* Design strategies for network data collection and management
* Calculate and interpret network metrics

**REQUIRED MATERIALS**:

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

(you may use the 2013 version as well)

In addition to this book, you will find weekly required readings from journals and book chapters. All should be accessible to you via the UNC library, but where they are not, you will find a PDF on Sakai.

Other books that are *not* required but that you may find useful:

Barabási, A. L. (2016). *Network science*. Cambridge university press.

Christakis, N. A., & Fowler, J. H. (2009). *Connected: The surprising power of our social networks and how they shape our lives*. Little, Brown Spark.

González-Bailón, S. (2017). *Decoding the social world: Data science and the unintended consequences of communication*. MIT Press.

Hansen, D. L., Shneiderman, B., Smith, M. A., & Himelboim, I. (2019). *Analyzing Social Media Networks with NodeXL: Insights from a Connected World* (2nd edition). Elsevier.

Jackson, S. J., Bailey, M., & Welles, B. F. (2020). *# HashtagActivism: Networks of Race and Gender Justice*. MIT Press.

Kadushin, C. (2012). *Understanding social networks: Theories, concepts, and findings*. Oxford University Press.

Monge, P. R., Peter, R., Contractor, N. S., Contractor, P. S., & Noshir, S. (2003). *Theories of communication networks*. Oxford University Press, USA.

Perry, B. L., Pescosolido, B. A., & Borgatti, S. P. (2018). *Egocentric network analysis: Foundations, methods, and models* (Vol. 44). Cambridge University Press.

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications* (Vol. 8). Cambridge university press.

**GRADING**:

Grading scale

The graduate scale (H, P, L, F) is in effect for all assignments for this seminar. Here are the criteria:

● H = Your very best work. You have read and critically engaged with all materials. Your class participation demonstrates the ability to apply the materials, extrapolate ideas, expand the material into new areas of thought, and contribute to the body of scholarship in the area.

● P = You give commendable effort and present acceptable work. You read and critically engage with all materials. You are able to apply the material and to extrapolate ideas in many instances.

● L = You read some of the material but do not often critically engage with it. You are able to apply the material and extrapolate ideas in some instances.

● F = You do not always read the material and fail to critically engage with it.

Grading rubric

Your overall grade for the course will be based on the following criteria:

Participation – 10%

Reading responses & discussion questions – 10%

New research presentation – 15%

Method / tool specific assignments – 15%

Final paper – 50%

Participation

I value the diversity that each person brings to the University of North Carolina. Ten percent of your final grade in this class comes from participation. I need your input and believe you can greatly contribute to our discussions. Attendance is important. But, simply showing up to class is not enough – you must be actively involved in class meetings to earn full credit for participation. This is a graduate seminar, and its success depends on consistent participation by all members of the course. You should attend each meeting having completed all the readings and prepared to actively engage in our discussion. This includes coming to class with your own questions and observations about the readings and being ready to interact with your fellow seminar participants. Your grade will be based on the *caliber* of your contribution to discussions – you are expected to ask and answer questions every week.

Reading responses and discussion questions

Our discussion of research articles using network theory and methods is essential for attaining the goals of the course. Prior to each class meeting, you will submit reactions to the readings in weekly discussion posts. You might pay particular attention to the articles along the following lines: What is the network feature of interest? What is the theoretical motivation to examine that aspect of the network? When the paper is empirical, what do the nodes and the ties represent? How was the data collected? Given the theoretical focus, would you have measured/analyzed the network differently? After discussing this, you should write at least two discussion questions related to the week’s set of readings that you would like to talk about in class. You should attempt to develop succinct, interesting questions that will stimulate theoretical and methodological discussions. The best questions will facilitate discussion about the connections or distinctions between the various readings that day, highlight strengths and weaknesses of the theory/methods, or will build on other areas of the course. Responses and questions should be submitted via a weekly discussion thread in Sakai and are due by 6pm on Tuesdays.

New research presentation

Twice during the semester, you will present to the class a **very** recent article (published since 2018) that builds on the theory, concepts, or methods from that week’s reading but is not on the syllabus. As another option, this could also be a new study in your topic/field interest that uses network theory and/or methods. It is up to you to find and choose the article you would like to present. The presentation will follow a conference-style format, with speakers presenting for about 10-12 minutes (uninterrupted), followed by a Q&A from seminar participants. Presentations should use visual aids and focus on the key theoretical and/or empirical advancements in the article, as well as potential limitations.

Method specific assignments

Throughout the course of the semester, we will complete several hands-on assignments to assist you in working through particulars of network data features and analysis.

Final paper

The main goal of the seminar is to produce a paper that advances your own research agenda in a way that is useful to you while building on what we read and discuss in the course. Keeping that in mind, you should choose from one of the following two options for the final paper.

1. Proposal: If you select this option, you should develop an original, theoretically-based research proposal that includes an introduction, a review of the relevant literature that builds towards hypotheses or research questions, a proposed network-related methodology that allows you to test your hypotheses or answer your research questions, proposed analyses, and a discussion about what would be learned and what the implications may be. Basically, this is a conference or journal manuscript without actual data.

2. Original research paper: Rather than create a proposal, if you have relevant primary or secondary data appropriate for network analysis, you may choose to write an original research paper in which you carry out the analyses designed to test your hypotheses or answer your research questions. The format is similar to option 1, though you would report actual, rather than proposed, methodologies and results. Ideally, you will submit this paper to a conference or a journal after you complete the course.

Whichever option you choose, papers must address a theoretical or methodological gap in communication research related to social capital, network theory, or network analysis. You should foremost consider the normative implications for the work, as well as the rationale: the so f\*cking what, as I was taught in graduate school.

Papers should be 15-25 pages, not including references, tables, figures, appendices, etc. and should follow APA guidelines (students from departments outside communication should talk to me if their field follows different guidelines). If your paper builds on ideas or work completed for other classes or from other projects, please talk to me about how this paper is different from work you’ve already done.

A one-page proposal describing your plan for the final paper should be submitted to me, via email, by Friday, September, 25. The paper will proceed in a review process. The first draft of the *full* paper is due Friday, October 30. You will get two reviews a week later – one from me, and one from an anonymous seminar peer. A revised final draft will be due, accompanied by a response memo, on Wednesday, November 25.

You may collect your own data, but also here are some resources for network data that may be of interest to you:

<https://icon.colorado.edu/#!/>

<http://www-personal.umich.edu/~mejn/netdata/>

<https://snap.stanford.edu/data/>

<http://konect.cc/categories/>

<https://github.com/schochastics/networkdata>

**IN CLASS:**

There is *plenty* of research suggesting that distractions far outweigh the benefits of technology, yet here we are in Zoom U 2020. I do ask that you silence your phones while we’re “in” class – whether in-person or virtually – and that you do your best to stay on task. There are some distractions we can work to avoid (Twitter) and some we might not be able to (children, pets, or other family members at home with us).

Our class is a safe environment where I aim to make everyone can feel a sense of academic belonging. Discussions should be respectful, and we should strive to help, not compete with, each other. That being said, if you see something, say something: if you notice inappropriate behavior directed at you or anyone else, please let me know immediately. This includes harassment, bullying, disrespectful comments, etc.

Each week, when we meet, I will lead a discussion of the class about the week’s topic and readings. I will bring in your discussion questions, as well as key points, observations, and/or questions made by students in posts that week. This discussion will take up the bulk of the class period. Next, the student assigned to present a new research presentation will present their additional, but related, study. There will be a brief Q&A session related to the presentation. We will also spend 20 – 30 minutes towards the end of each class talking about the professionalization topic of that day. Students are encouraged to come to class with questions specifically related to that topic as well. Finally, in some class meetings, we will spend some time talking about your own study and how it is progressing.

For our first meetings, which will take place on Zoom, we will aim to finish somewhere right under the two-hour mark. The rest of our course “time” will be spent working, asynchronously, on assignments related to the specific methods and tools for network analysis. If we are able to safely transition back to an in-person meeting at some point, we will follow a pretty similar format – but we will take a break each time at about the mid-point, and we will spend more time starting assignments in class together.

**HONOR CODE**:

The Honor Code (<https://catalog.unc.edu/policies-procedures/honor-code/>) forms a bond of trust among students, faculty, and administrators. The University of North Carolina at Chapel Hill operates under a system of self-governance, as students are responsible for governing themselves. As such, our University is transformed into a powerful community of inquiry and learning. The Honor Code embodies the ideals of academic honesty, integrity, and responsible citizenship, and governs the performance of all academic work a student conducts at the University. Acceptance of an offer of admission to Carolina presupposes a commitment to the principles embodied in our century-old tradition of honor and integrity.

**SEEKING HELP**:

If you need individual assistance, it is your responsibility to meet with the instructor. If you are serious about wanting to improve your performance in the course, the time to seek help is as soon as you are aware of the problem – whether the problem is difficulty with course material, a learning difference, or an illness.

**DIVERSITY**:

The University’s policy on Prohibiting Harassment and Discrimination is outlined on the Equal Opportunity and Compliance Office’s webpage (<https://eoc.unc.edu/our-policies/ppdhrm/>). UNC is committed to providing an inclusive and welcoming environment for all members of our community and does not discriminate in offering access to its educational programs and activities on the basis of age, gender, race, color, national origin, religion, creed, disability, veteran’s status, sexual orientation, gender identity, or gender expression.

**SPECIAL ACCOMMODATIONS**:

If you require special accommodations to attend or participate in this course, please let the instructor know as soon as possible. If you need information about disabilities visit the Accessibility Resources & Services site at <https://ars.unc.edu/>.

**WEEKLY CLASS SCHEDULE**:

Week-by-week schedule.
\*Please see [UNC academic calendar](https://registrar.unc.edu/academic-calendar/) for the Fall 2020 schedule.
\*\* Obviously, much of this is subject to change due to COVID-19

**Wednesday, August 12** – Introductions, logistics, flow of the course & discussion on relational thinking

READ:

Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network analysis in the social sciences. *science*, *323*(5916), 892-895.

DO: Be ready to introduce yourself to the class

**Wednesday, August 19** – An Introduction to Network Theory & Network Science

READ:

Borgatti, Everett & Johnson – Chapter 1

Bennett, W. L., & Segerberg, A. (2012). The logic of connective action: Digital media and the personalization of contentious politics. *Information, communication & society*, *15*(5), 739-768.

Boyd, D. (2010). Social network sites as networked publics: Affordances, dynamics, and implications. In *A networked self* (pp. 47-66). Routledge.

Emirbayer, M. (1997). Manifesto for a relational sociology. *American journal of sociology*, *103*(2), 281-317.

Watts, D. J. (2004). The “new” science of networks. *Annual Review of Sociology*, *30*, 243-270.

PROFESSIONALIZATION: Academic conferences

**Wednesday, August 26** – Social Capital

READ:

Bourdieu, Pierre. 1985. "The forms of capital." Pp. 241‐258 in Handbook of Theory and Research for the Sociology of Education, edited by Jacques G. Richardson. New York: Greenwood. [PDF](https://revise-it.co.uk/wp-content/uploads/2020/05/bourdieu_forms_of_capital-1.pdf)

Moody, J., & Paxton, P. (2009). Building bridges: Linking social capital and social networks to improve theory and research.

Norris, P. (1996). Does television erode social capital? A reply to Putnam. *PS: Political Science and Politics*, *29*(3), 474-480.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual review of sociology*, *24*(1), 1-24.

Putnam, R. D. (1995). Tuning in, tuning out: The strange disappearance of social capital in America. *PS: Political science & politics*, *28*(4), 664-684.

Williams, D. (2006). On and off the 'net: Scales for social capital in an online era. Journal of Computer‐Mediated Communication, 11(2)

*Also suggested:*

Coleman, J. S. (1988). Social capital in the creation of human capital. *American journal of sociology*, *94*, S95-S120.

de Zúñiga, H. G., Barnidge, M., & Scherman, A. (2017). Social media social capital, offline social capital, and citizenship: Exploring asymmetrical social capital effects. *Political Communication*, *34*(1), 44-68.

Van Der Gaag, M., & Snijders, T. A. (2005). The Resource Generator: social capital quantification with concrete items. *Social networks*, *27*(1), 1-29.

PROFESSIONALIZATION: CVs and scholarly identity

**Wednesday, September 2** – Some basic concepts

READ:

Borgatti, Everett & Johnson – Chapter 2 and 3

Freelon, D. (2014). On the interpretation of digital trace data in communication and social computing research. *Journal of Broadcasting & Electronic Media*, *58*(1), 59-75.

Hanneman, Robert A. and Mark Riddle. 2005. Introduction to social network methods. Riverside, CA: University of California, Riverside. Chapter 1 and 1. [PDF](http://www.analytictech.com/networks.pdf)

Marsden, P. V. (1990). Network data and measurement. *Annual review of sociology*, 435-463.

*Also suggested:*

Feld, S. L. (1991). Why your friends have more friends than you do. *American Journal of Sociology*, *96*(6), 1464-1477.

PROFESSIONALIZATION: Publishing / journals

**Wednesday, September 9** – Homophily, tie strength, and communities

READ:

Barberá, P. (2015). Birds of the same feather tweet together: Bayesian ideal point estimation using Twitter data. *Political analysis*, *23*(1), 76-91.

Eddington, S. M. (2018). The communicative constitution of hate organizations online: A semantic network analysis of “Make America great again”. *Social Media+ Society*, *4*(3), 2056305118790763.

Granovetter, Mark. 1973. "The Strength of Weak Ties." American Journal of Sociology 78:1360‐80

Himelboim, I., McCreery, S., & Smith, M. (2013). Birds of a feather tweet together: Integrating network and content analyses to examine cross-ideology exposure on Twitter. *Journal of computer-mediated communication*, *18*(2), 154-174.

Mai, B., Liu, J., & González-Bailón, S. (2015). Network effects in the academic market: Mechanisms for hiring and placing PhDs in communication (2007–2014). *Journal of Communication*, *65*(3), 558-583.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual review of sociology*, *27*(1), 415-444.

Onnela, J. P., Saramäki, J., Hyvönen, J., Szabó, G., Lazer, D., Kaski, K., ... & Barabási, A. L. (2007). Structure and tie strengths in mobile communication networks. *Proceedings of the national academy of sciences*, *104*(18), 7332-7336.

*Also suggested:*

Granovetter, Mark. 1982. "The Strength of Weak Ties: A Network Theory Revisited." Pp. 105‐130 in Social Structure and Network Analysis, edited by Peter Marsden and Nan Lin. Beverly Hills, CA: Sage.

Kossinets, G., & Watts, D. J. (2009). Origins of homophily in an evolving social network. *American journal of sociology*, *115*(2), 405-450.

PROFESSIONALIZATION: Publishing / peer review

**Wednesday, September 16** – Size matters, distance matters, paths matter

READ:

Borgatti, Everett & Johnson – Chapter 14

Hampton, K. N., Sessions, L. F., & Her, E. J. (2011). Core networks, social isolation, and new media: How Internet and mobile phone use is related to network size and diversity. *Information, Communication & Society*, *14*(1), 130-155.

Marsden, P. V. (1987). Core discussion networks of Americans. *American sociological review*, 122-131.

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social isolation in America: Changes in core discussion networks over two decades. *American sociological review*, *71*(3), 353-375.

Tong, S. T., Van Der Heide, B., Langwell, L., & Walther, J. B. (2008). Too much of a good thing? The relationship between number of friends and interpersonal impressions on Facebook. *Journal of computer-mediated communication*, *13*(3), 531-549.

Schnettler, S. (2009). A structured overview of 50 years of small-world research. *Social networks*, *31*(3), 165-178.

*Also suggested:*

Benkler, Y., Faris, R., & Roberts, H. (2018). *Network propaganda: Manipulation, disinformation, and radicalization in American politics*. Oxford University Press.

Shah, D. V. (2016). Conversation is the soul of democracy: Expression effects, communication mediation, and digital media. *Communication and the Public*, *1*(1), 12-18.

Schudson, M. (1997). Why conversation is not the soul of democracy. *Critical Studies in Media Communication*, *14*(4), 297-309.

PROFESSIONALIZATION: Getting sh\*t done / organization and work flow

**Wednesday, September 23** – Network data & data management

READ:

Borgatti, Everett & Johnson – Chapter 4 & 5

Hansen, D., Shneiderman, B., & Smith, M. A. (2010). *Analyzing social media networks with NodeXL: Insights from a connected world*. Morgan Kaufmann. - Chapter 3

González-Bailón, S., Wang, N., Rivero, A., Borge-Holthoefer, J., & Moreno, Y. (2014). Assessing the bias in samples of large online networks. *Social Networks*, *38*, 16-27.

Hogan, B. (2016). Online social networks: Concepts for data collection and analysis*. In Fieldng, NG, Lee, R., & Blank, G.(eds). The Sage Handbook of Online Research Methods, Second edition. Thousand Oaks, CA: Sage Publications*, 241-258.

Kadushin, C. (2005). Who benefits from network analysis: ethics of social network research. *Social networks*, *27*(2), 139-153.

Marsden, Peter V. 2005. "Recent Developments in Network Measurement." in Models and Methods in Social Network Analysis, edited by Peter J. Carrington, John Scott, and Stanley Wasserman. New York, NY: Cambridge University Press.

*Also suggested:*

Klofstad, C. A., McClurg, S. D., & Rolfe, M. (2009). Measurement of political discussion networks: A comparison of two “name generator” procedures. *Public Opinion Quarterly*, *73*(3), 462-483.

DO: By Friday, September 25 email me your one-page project proposal

PROFESSIONALIZATION: Public engagement

**Wednesday, September 30** – Levels of analysis

READ:

Borgatti, Everett & Johnson – Chapter 9

Breiger, R. L. (1974). The duality of persons and groups. *Social forces*, *53*(2), 181-190.

Monge, P. E., & Contractor, N. S. (2003). *Theories of Communication Networks,* Chapter 2: Network concepts, measures, and the multitheoretical, multilevel analytic framework. [PDF](https://d1wqtxts1xzle7.cloudfront.net/30623220/http___www.hks.harvard.edu_m-rcbg_Director_dgworkshop_contractor_chapter1.pdf?1361369610=&response-content-disposition=inline%3B+filename%3DTheories_of_communication_networks.pdf&Expires=1596745920&Signature=SoxMQ4QN90KQ0bX-8QSn7i7m4GfWoa14OeG-B5Ro-xU5oiaYvdrPY1rmGNiqGOZGpHcUHX-709GC1N7RQQY1B~xOA2q6wDYLp8VovWUWBRxvh3jI33gwE8cuGVEbDW-wNoScEmZ95e7aRy5WqWa0aA0rfF0I5RRp-O-MMmbm9E6~vS7Y1nXegbwBiyIUxrUp-23~QZbRHcIT2~pfv4A9QhYfyzYgAxWMSfI4DPHxO7eM1pt~rpqUbkqgW8WnyGguf1lm8Fw16-t0RAQlg1md2~5x0zvd53EEYzc-7XNwnLaJJsMVU75VCeN9ZWHTTLjV865FvoO2KKzajOP6wKSEzw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA)

Ognyanova, K., & Monge, P. (2013). A multitheoretical, multilevel, multidimensional network model of the media system: Production, content, and audiences. *Annals of the International Communication Association*, *37*(1), 67-93.

PROFESSIONALIZATION: Jobs / types of jobs, the job market

**Wednesday, October 7** – Density & centrality

READ:

Borgatti, Everett & Johnson – Chapter 10

Fowler, J. H. (2006). Connecting the Congress: A study of cosponsorship networks. *Political Analysis*, 456-487.

Freelon, D., & Karpf, D. (2015). Of big birds and bayonets: Hybrid Twitter interactivity in the 2012 presidential debates. *Information, Communication & Society*, *18*(4), 390-406.

Freeman, L. C. (1978). Centrality in social networks conceptual clarification. *Social networks*, *1*(3), 215-239.

Jackson, S. J., & Foucault Welles, B. (2015). Hijacking# myNYPD: Social media dissent and networked counterpublics. *Journal of Communication*, *65*(6), 932-952.

McGregor, S. C., & Mourão, R. R. (2016). Talking politics on Twitter: Gender, elections, and social networks. *Social media + society*, *2*(3), 2056305116664218.

PROFESSIONALIZATION: \*\* TK from class suggestions \*\*

**Wednesday, October 14** – Individual meetings on chosen tool(s)

**Wednesday, October 21** – Structural holes, brokers, and interlockers

READ:

Bail, C. A. (2016). Combining natural language processing and network analysis to examine how advocacy organizations stimulate conversation on social media. *Proceedings of the National Academy of Sciences*, *113*(42), 11823-11828.

Burt, R. S. (2004). Structural holes and good ideas. *American journal of sociology*, *110*(2), 349-399.

Burt, R. S. (2015). Reinforced structural holes. *Social Networks*, *43*, 149-161.

Kreiss, D., & Saffer, A. J. (2017). Networks and innovation in the production of communication: Explaining innovations in US electoral campaigning from 2004 to 2012. *Journal of Communication*, *67*(4), 521-544.

Malinick, T. E., Tindall, D. B., & Diani, M. (2013). Network centrality and social movement media coverage: A two-mode network analytic approach. *Social Networks*, *35*(2), 148-158.

Ugander, J., Backstrom, L., Marlow, C., & Kleinberg, J. (2012). Structural diversity in social contagion. *Proceedings of the National Academy of Sciences*, *109*(16), 5962-5966.

PROFESSIONALIZATION: \*\* TK from class suggestions \*\*

**Wednesday, October 28** – Core & periphery

READ:

Barberá, P., Wang, N., Bonneau, R., Jost, J. T., Nagler, J., Tucker, J., & González-Bailón, S. (2015). The critical periphery in the growth of social protests. *PloS one*, *10*(11), e0143611.

Bennett, W. L., Segerberg, A., & Yang, Y. (2018). The strength of peripheral networks: Negotiating attention and meaning in complex media ecologies. *Journal of Communication*, *68*(4), 659-684.

Gallagher, R. J., Reagan, A. J., Danforth, C. M., & Dodds, P. S. (2018). Divergent discourse between protests and counter-protests: #BlackLivesMatter and# AllLivesMatter. *PloS one*, *13*(4), e0195644.

McDonald, S. (2011). What's in the “old boys” network? Accessing social capital in gendered and racialized networks. *Social networks*, *33*(4), 317-330.

Seidman, S. B. (1983). Network structure and minimum degree. *Social networks*, *5*(3), 269-287.

Usher, N., Holcomb, J., & Littman, J. (2018). Twitter makes it worse: Political journalists, gendered echo chambers, and the amplification of gender bias. *The international journal of press/politics*, *23*(3), 324-344.

Welles, B. F., & Jackson, S. J. (2019). The Battle for #Baltimore: Networked Counterpublics and the Contested Framing of Urban Unrest. *International Journal of Communication*, *13*, 21.

DO: By Friday, October 30 email me a full draft of your proposal or paper

**Wednesday, November 4** – Thoughts on network visualization

READ:

Borgatti, Everett & Johnson – Chapter 7

Brandes, U., Indlekofer, N., & Mader, M. (2012). Visualization methods for longitudinal social networks and stochastic actor-oriented modeling. *Social Networks*, *34*(3), 291-308.

Crnovrsanin, T., Muelder, C. W., Faris, R., Felmlee, D., & Ma, K. L. (2014). Visualization techniques for categorical analysis of social networks with multiple edge sets. *Social Networks*, *37*, 56-64.

Freeman, L. C. (2000). Visualizing social networks. *Journal of social structure*, *1*(1), 4.

*Also suggested:*

Healy, K. (2018). *Data visualization: a practical introduction*. Princeton University Press.

**Wednesday, November 11** – Class project presentations

DO: Present project to the class. Also, peer reviews due by Friday, November 13 to me via email.

**CREDITS:**

Some of the ideas, exercises, and readings in this class were inspired by or adapted from the work of the following people, who were kind enough to share their syllabi, ideas, and/or suggestions. If you are on this list, thank you for being awesome, smart, and generous: Dr. Sandra González-Bailón (U of Pennsylvania), Dr. Itai Himelboim (U of Georgia), Dr. Wenhong Chen (U of Texas), Dr. Rachel Mourao (Michigan State U), Dr. Mike Wagner (U of Wisconsin), and Dr. Adam Saffer (U of Minnesota)