

SOCI 3102: Social Networks and Social Capital

Department of Sociology
The Chinese University of Hong Kong
Thursdays 4:30 - 6:15 p.m.
Fall 2021

Contact Information

Professor: Siqu Han, Ph.D.
E-mail: siquhan@cuhk.edu.hk
Office hours: By appointment
Office: Sino Building Room 416

Teaching Assistant: Niantao Jiang
E-mail: ntjiang@link.cuhk.edu.hk

Course Description

Social network is one of the fastest growing sub-areas within the discipline of sociology. The science of social networks focuses on measuring, modeling, and understanding the different ways that people are connected to one another. This is one of the only sub-areas of sociology that has a body of theory accompanied by a distinct methodology. SNA (Social Network Analysis) is not just about analytic techniques. Many years of social network studies have extensively represented rich sociological theory traditions such as structuralism, interactionism, and relational perspectives. This course is designed to provide students with the opportunity to (1) Understand basic network concepts and theories, (2) Use social-scientific terminology to describe patterns of structure and change observed in networks, (3) Understand and be capable of using measures based on graph theory and matrix algebra to analyze and describe social networks, (4) Understand the way that social network concepts, theory, and measures can be applied to shed light on a wide variety of phenomena across different fields of study in the social sciences and beyond.

Assessment and Grading

The grade for the course will be calculated as a weighted average of the following components:

Participation	15%
Tutorial problem sets	30%
Mid Term Project	20%
Final Project	35%

Participation (15%)

- To attend or skip is an adult's decision—you take your responsibility for what you do. To ensure your compliance in the lecture, there will be **random in-class polls** displaying easy questions with respect to class materials and check your attendance.

- Depending on how many times the instructor polls, **anyone who is found missing in more than 60% of the polls will lose all 15% of the participation score**; missing in more than 40% of the polls will lose 10%; missing in more than 20% of the polls will lose 5%.

Tutorial problem sets (15% + 15% = total 30%)

- There will be **six tutorials**, each is 2-hour long. The first five tutorials will be on substantive contents, and the last will help you prepare for the final project.
 - Tutorial 1: install R, R studio, install certain network packages – week 2
 - Tutorial 2: review and application of basic network concepts- week 4
 - Problem set 1 **due a week after the tutorial, 5pm**
 - Tutorial 3: basic R – week 6
 - Tutorial 4: data manipulation in R – week 8
 - Tutorial 5: data reshape and network graphs in R – week 10
 - Problem set 2 **due a week after the tutorial, 5 pm**
 - Tutorial 6: discussion of and help with final project – week 12
- The problem sets (15% + 15%) are open book and you are allowed to discuss with peers and the tutor, but you must not submit identical work to others', otherwise it would be deemed as plagiarism.
- You can find the details in [the guide at the end](#).

Mid-Term Project (20%)

- The mid-term project will be a critical analysis essay on an academic paper related to **East Asian social networks**.
- You can find the details in [the guide at the end](#).
- Due **week 7 before class**.

Final Project (35%)

- I want us all to constantly grow a knowledge network about SNA relevant to our own interest.
- You will collect non-academic materials related to your own interest and build **a knowledge network** based on your contents.
- You will clarify the linkage between your clipped contents and the SNA concepts covered by the lectures in this practice.
- You will submit a network graph (auto-generated in **Obsidian**) and a one-page write-up based on the graph you generated.
- You can find the details in [the guide at the end](#). The instructor will show you an example of a knowledge network she built to demonstrate how it works.
- Due on **Thursday 5 pm of week 13/final exam period (tentative)**

Grading

Letter Grade	Point %
A+	>= 97%
A	93-96%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D	60-69%
F	< 60%

Academic Honesty

Please keep in mind [the university's policy on academic honesty](#). Plagiarism will not be tolerated in the term paper and assignments. The ideas and language should be your own, and any outside sources must be clearly and properly cited. There are severe consequences if you commit any acts of academic dishonesty. In addition to the [department's policy and guidelines for citations](#), please refer to the [university-level disciplinary guidelines and procedures](#). The Faculty of Social Science has also compiled a [handout](#) to alert students of the importance of academic honesty and the consequences of violating the University's Rules. To this end, the final project (one-page essay with a network figure) should be submitted to [VeriGuide](#).

Other Class Logistics

- Lecture slides will be uploaded to the course Blackboard **after class**.

Schedule and Reading

1. intro
2. basic concepts I
3. basic concepts II
4. dyads and triads
5. centrality (**problem set 1 due**)
6. weak ties and structural holes
7. social capital (**midterm due**)
8. segmentation and cohesion
9. small world

10. diffusion and influence
11. scientific networks (problem set 2 due)
12. future agenda, discussion of the final project

Tutorial Times

Fridays 2:30 – 4:15 pm (tentative) except for Oct 1st holiday (moved to Oct 4th , same time)

Required Book

Kadushin, Charles. 2012. *Understanding Social Networks: Theories, Concepts, and Findings*. Oxford University Press.

Recommended Books

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge University Press.

Light, Ryan and James Moody (eds.). 2021. *The Oxford Handbook of Social Networks*. Oxford University Press. – Available online in CUHK library.

Readings are subject to minor changes throughout the semester.

***Denotes required reading**

Week 1. Course Introduction

*Kadushin Ch. 5, 12

Borgatti, Stephen P., Ajay Mehra, Daniel J. Brass, and Giuseppe Labianca. 2009. "Network Analysis in the Social Sciences." *Science* 323(April):892–96.

Emirbayer, Mustafa and Jeff Goodwin. 1994. "Network Analysis, Culture, and the Problem of Agency." *American Journal of Sociology* 99(6):1411–54.

Week 2 & 3. Basic concepts I & II

*Hanneman, Robert and Mark Riddle. 2005. Introduction to Social Network Methods. Chapters 3, 5.
http://faculty.ucr.edu/~hanneman/nettext/C3_Graphs.html
http://faculty.ucr.edu/~hanneman/nettext/C5_%20Matrices.html

Week 4. Dyads and Triads

*Kadushin Ch. 2

*Schaefer, David R., John M. Light, Richard A. Fabes, Laura D. Hanish, and Carol Lynn Martin. "Fundamental principles of network formation among preschool children." *Social Networks* 32, no. 1 (2010): 61-71.

Chase, Ivan D. "Social process and hierarchy formation in small groups: a comparative perspective." *American Sociological Review* (1980): 905-924.

Week 5. Centrality

*Kadushin Ch. 3

*Faris, Robert, and Diane Felmlee. "Status struggles: Network centrality and gender segregation in same-and cross-gender aggression." *American Sociological Review* 76, no. 1 (2011): 48-73.

Borgatti, Stephen P. 2005. "Centrality and Network Flow." *Social Networks* 27 (1): 55–71.

Christakis, Nicholas A. and James H. Fowler. 2010. "Social Network Sensors for Early Detection of Contagious Outbreaks." *PLoS ONE* 5(9):e12948.

Week 6. Weak Ties and Structural Holes

*Kadushin Ch. 3

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

Bian, Yanjie. 1997. "Bringing Strong Ties Back in: Indirect Ties, Network Bridges, and Job Searches in China." *American Sociological Review* 62(3):366–85.

Small, Mario Luis. "Weak ties and the core discussion network: Why people regularly discuss important matters with unimportant alters." *Social Networks* 35, no. 3 (2013): 470-483.

Week 7. Social Capital

*Kadushin Ch. 10.

*Lin, Nan. 1999. "Building a network theory of social capital." *Connections*. 22(1), 28- 51.

*Coleman, James S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94(s1):S95–120.

Burt, Ronald S. and Katarzyna Burzynska. 2017. "Chinese Entrepreneurs, Social Networks, and Guanxi." *Management and Organization Review* 13(2):221–60.

Week 8. Segmentation and Cohesion

*Kadushin Ch 4

*Moody, James and Douglas R. White. 2003. "Structural Cohesion and Embeddedness: A Hierarchical Concept of Social Groups." *American Sociological Review* 68(1):103–27.

Burdick-Will, Julia, Jeffrey A. Grigg, Kiara Millay Nerenberg, and Faith Connolly. "Socially-structured mobility networks and school segregation dynamics: The role of emergent consideration sets." *American Sociological Review* 85, no. 4 (2020): 675-708.

Week 9. Small World

* Kadushin Ch. 8.

*Uzzi, Brian, and Jarrett Spiro. "Collaboration and creativity: The small world problem." *American Journal of Sociology* 111, no. 2 (2005): 447-504.

Watts, Duncan J. "Networks, dynamics, and the small-world phenomenon." *American Journal of Sociology* 105, no. 2 (1999): 493-527.

Week 10. Diffusion and Influence

* Kadushin Ch. 9.

*Kreager, Derek A. & Dana L. Haynie. 2011. "Dangerous Liaisons? Dating and Drinking Diffusion in Adolescent Peer Networks" *American Sociological Review* 76: 737-763

Hartvigsen, G., J. M. Dresch, A. L. Zielinski, A. J. Macula, and C. C. Leary. "Network structure, and vaccination strategy and effort interact to affect the dynamics of influenza epidemics." *Journal of theoretical biology* 246, no. 2 (2007): 205-213.

Week 11. Networks and Science

* Hofstra, Bas, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan He, Dan Jurafsky, and Daniel A. McFarland. "The diversity–innovation paradox in science." *Proceedings of the National Academy of Sciences* 117, no. 17 (2020): 9284-9291.

* Wu, Lingfei, Dashun Wang, and James A. Evans. "Large teams develop and small teams disrupt science and technology." *Nature* 566, no. 7744 (2019): 378-382.

Gerow, Aaron, Yuening Hu, Jordan Boyd-Graber, David M. Blei, and James A. Evans. "Measuring discursive influence across scholarship." *Proceedings of the national academy of sciences* 115, no. 13 (2018): 3308-3313.

Week 12. Future Agenda and Guidance on Final Project

Guide to Mid-Term Project

Goal

Knowing how to critically read and criticize an academic article is a valuable skill for college and further studies.

Topics

To make sure everyone's on the same page, please select one article cited in

Bian, Y., & Ken'ichi Ikeda. (2018). East Asian Social Networks. In Alhaji and Rokne (eds.) *Encyclopedia of Social Network Analysis and Mining*.

Available on CUHK library website:

https://link.springer.com/referenceworkentry/10.1007%2F978-1-4939-7131-2_60

at the end of this paper, there is a bibliography of social network research in East Asia, a topic we do not comprehensively cover in regular lectures. Choose only **empirical** research for review, that is, an article that has Data, Methods, and Results sections.

Length

No more than 3 single spaced pages, and please include section titles.

Contents

Before writing your critical analysis, consult writing resources for the structure of such an essay.

There are various guides online, such as: <https://libguides.usc.edu/writingguide/readingresearch>

Your commentary may include

- What is this study trying to prove or disprove?
- What do we already know about this topic and what gaps does this study try to fill or contribute a new understanding to the research problem?
- How has prior research led the author(s) to conduct this particular study?
- Did the study use qualitative [based on interviews, observations, content analysis], quantitative [based on the SNA methods we learnt in class], or a mixed-methods approach to examining the research problem?
- What was the type of information or data used?
- Is enough information available to repeat the study or should new data be found to expand or improve understanding of the research problem?
- Are the results presented in a factual and unbiased way?
- Does the analysis of results in the discussion section agree with how the results are presented?

Evaluation Criteria

The bottom line: If one has not read the research article you analyzed, simply by reading your commentary, she would be able to grasp the key ideas of the article without difficulties. Then, the essay will be evaluated according to the elements outlined above.

Guide to Final Project

Goal

I want the course to inform your way of thinking in the future. In this final project we will attempt to link what we have learnt with a topic you find interesting in your daily life. We will discover how this topic can be understood from a social network perspective.

Steps

- This project requires you to clip and share **5 or more** pieces of non-academic articles related to the themes of the concepts covered in the course. The non-academic articles can be on any topic of your interest. You will identify how your articles are related to each other, mark the shared or linked concepts in the articles, and add **Zettelkasten links** across the sources via the link function ([[]]) in **Obsidian, an open source software**. So, the end product will be a **knowledge network**.
- This network building process is **not supposed to be technical**. No actual coding is required. After you accumulated links in Obsidian, it will automatically create a knowledge network for you. **Your focus should be on discovering the network structure underlying the contents you clipped.**
- The instructor will demonstrate a knowledge network she created of her interest to you in class so that you know what to expect.
- After building such a knowledge network, please write a **commentary (1 single spaced page maximum)** to summarize what you discovered from such a process. Make sure you can relate to network structure concepts such as dyad, triad, centrality, transitivity, cluster, and so on. To substantiate the relevance of your non-academic articles to the course concepts, in the commentary you are required to **cite at least 2 social network concepts/mechanisms from the textbook or the course readings**.

Evaluation Criteria

The final products include (1) A knowledge network figure, and (2) a single-spaced, one-page write-up that summarizes the network features of this figure, using the concepts we learned in class. You will be evaluated on how well your clipped articles come together as a knowledge network, whether you discovered any new/hidden ideas from this network, and how well you interpret the network structure.

Guide to Tutorial Problem Sets

First problem set

- Question and answer format assignment.
- This problem set contains 3 questions. Based on a real life scenario, you will be asked to generate networks in the format of matrices and reveal a feature from the networks.
- The first and the second questions each takes up 40%, and the last takes up 20%.

Second problem set

- The output of this problem set is a R-generated network graph
- The data will be provided by your tutor. You only need to operate on the data and do not need to collect your own data.
- Notice that to avoid free-riders or plagiarism, everyone will be provided a sample of a bigger dataset to work with: that means in the end your graphs will all look different.
 - **If two submissions show the exact same graph, that means you two are in trouble.**
- To achieve that you need to be able to
 - input a network matrix in R
 - use R package *igraph* to convert your matrix to a *igraph* object
 - then use default plot function or ggplot function to plot this igraph object