Part 1: Networks and organizations

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Part 2: Organizational learning, behavioral strategy, and luck

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Course overview

This course is composed of two parts. The first part of the course introduces social network analysis within organizations. We will start by discussing key ideas and debates in social network analysis, such as the notion of embeddedness, network structure, and the role of individual agency. We will then take a deeper dive into the methodological implications of doing research with social network data. We will cover 1) measures used to identify network positions and key network characteristics, 2) more advanced statistical models developed to handle the problem of dependence of observations, 3) concepts and measures regarding network dynamics, and 4) network experiments and causality. We will also spend time with hands-on workshops to learn how to manipulate network data. This first part will equip you with the knowledge that you need to embark on more advanced topics in network analysis. The second part of the course focuses on organizational learning and its implications for strategy. We will cover canonical ideas/models, such as the exploration and exploitations trade-off, the traps when organizations learn from successes and failures, how randomness complicates learning, and how learning reinforces or changes organizational routines. A framework of strategy as arbitrage will be introduced to connect several ideas covered in this course.

Course format

We will meet once a week for three hours. In each meeting, you are expected to have prepared the assigned readings for each session. While reading the papers it may be useful to first identify the research question, major concepts used to formulate the research problem, the methodology used, key findings and its major shortcomings or weaknesses. You should then be able to suggest research ideas on how to address the weak or problematic aspects of the article.

Management Science II, Summer Term 2023
ESMT Admin Building, Breite Str. 1 or ZOOM
Thursdays 9:00am to 12:00noon (please see separate schedule for further details)

Selected readings are available at: https://cloud.esmt.org/s/TpNbi2ZsjzkKEY5

Each participant will be assigned to present at least one paper in class during the course depending on the number of participants. The student assigned the paper being discussed is not only expected to introduce the paper but also to lead the class discussion. The presentation assignments will be communicated after the first session.

Prerequisites

Participants should be familiar with basic microeconomic tools as well as have a basic understanding of multivariate regression analysis.

Course evaluation

Performance evaluation will be based on three building blocks:

Class participation (25%) The course will be highly interactive and you are expected to advance discussions in the class-room by your participation. Note that the evaluation of your class participation will be based on quality not quantity.

Paper presentations (30%) You are expected to present at least one paper during the course.

Term paper/referee report (45%) Grading of the written contribution is based on one individual assignment for which each student is expected to write one referee report on a recent research paper. The instructors will provide a list of research papers on the topics of each part of the course from which students could choose one paper to prepare a referee report. The list of research papers will be provided during the course. Alternatively, students can opt to write a term paper in the form of a research proposal. **Referee reports and research proposals are due by August 13, 2023.**

Part 1: Networks and organizations
Core concepts and methods to understand networks in organizations

Eric Quintane

Course Sessions

Session 1
Thursday, April 20, 2023
9:00–12:00

Session topic	**Key ideas in organizational network analysis**
	Departing from other perspectives, Social Network Analysis focuses on the relations between social actors (e.g., individuals, groups, organizations). The shift in perspective from actor level characteristics to (or combined with) relations between actors has contributed to our understanding of individual, group or organizational level outcomes and the social processes that drive them. In this first session we will introduce the social network perspective in management studies and articulate the key ideas and debates that permeate the study of organizational networks today.

Required Readings:	Borgatti, S. P., A. Mehra, D. J. Brass, and G. Labianca. 2009. Network Analysis in the Social Sciences. Science, 323: 892–895. Kilduff, M., and D. J. Brass. (2010). Organizational Social Network Research: Core Ideas and Key Debates. Academy of Management Annals. 4:317 - 357.
Task (participation grade):	Based on the required readings, prepare a brief (one-paragraph) answer to each question and submit it before class: 1. Why does social network analysis matter (for the study of organizations)? 2. How do social networks exert influence? 3. (How) Do individuals matter in a network?
Optional Readings:	Burt, R. S. (2004). Structural Holes and Good Ideas. American Journal of Sociology, 110(2), 349–399. Burt, R. S. (1987). Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92(6): 1287–1335. Feld, S. (1981). The focused organization of social ties. American Journal of Sociology, 86(5), 1015–1035. Granovetter, M. (1973). The Strength of Weak Ties. American Journal of Sociology, 78(6), 1360–1380.

**Session 2
Thursday, April 27, 2023
9:00–12:00**

Session topic	**Individuals in networks** Building on matrix algebra and graph theory, network measures have been developed to represent precisely the patterns of social relations that surround actors. These measures represent certain characteristics of the social environment that surrounds individuals. We will review some of the most commonly used measures to capture individual positions in a network and discuss how networks affect individual level outcomes.

Required Readings:

Burt, R. S. (2019). Network disadvantaged entrepreneurs: Density, hierarchy, and success in China and the West. Entrepreneurship Theory and Practice, 43(1), 19-50.

Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social Networks and the Performance of Individuals and Groups. Academy of Management Journal, 44(2), 316–325.

Task (participation grade):

Based on the required readings, prepare a brief answer to the question and submit it before class:
How do networks impact individual outcomes?

Optional Readings:

Brands, R., Ertug, G., Fonti, F., & Tasselli, S. 2022. Theorizing Gender in Social Network Research: What We Do and What We Can Do Differently. Academy of Management Annals, 16(2): 588–620.
Fang, R., Landis, B., Zhang, Z., Anderson, M.H., Shaw, J.D., Kilduff, M., 2015. Integrating Personality and Social Networks: A Meta-Analysis of Personality, Network Position, and Work Outcomes in Organizations. Organization Science, 26(4): 1243-1260.
Schorch, S. and Quintane, E. (2018). Social Network Analysis. In Edlund, J. E & Nichols, A. L. Eds. Advanced Research Methods for the Social Sciences. Cambridge University Press.
Tasselli, S., & Kilduff, M. 2021. Network agency. Academy of Management Annals, 15(1): 68–110.

Session 3
Thursday, May 4, 2023
9:00–12:00

Session topic	**Workshop 1**
	In this first workshop, we will work with network data in R. We will identify different strategies used to collect network data. In R, we will import and format network data, visualize networks, and calculate individual-level and network-level metrics. We will spend time interpreting the outputs.

Required Readings:	Borgatti, S. P., Everett, M. G., & Johnson, J. C. 2013. *Analyzing social networks*. SAGE Publications Limited. Chapters 3, 4, 5, 7 and 10
Optional Readings:	Freeman, L. C. (1979). Centrality in Social Networks: Conceptual Clarifications. Social Networks, 1(3), 215–239. Marsden, P. V. (1990). Network Data and Measurement. Annual Review of Sociology 16: 435-463. Marsden, P. V. (2002). Egocentric and Sociocentric Measures of Network Centrality. Social Networks, 24(4), 407–422. Robins, G. (2015). Doing Social Network Research: Network-based Research Design for social Scientists. Sage.

Session 4
Thursday, May 11, 2023
9:00–12:00

Session topic	**Dependence assumptions and exponential random graph models**
	The core focus of social network analysis on the relationships between social actors implies that observations in social network analysis are dependent. This means that standard statistical analysis methods are in most cases inappropriate (because they assume independence of observations). We will review some of the most used statistical frameworks that have been developed to handle the issue of dependence of observations in social network analysis.

Required Readings:	Brands, R. A., & Kilduff, M. (2014). Just Like a Woman? Effects of Gender-Biased Perceptions of Friendship Network Brokerage on Attributions and Performance. Organization Science, 25(5), 1530–1548.
	Brennecke, J. (2019). Dissonant ties in intraorganizational networks: Why individuals seek problem-solving assistance from

	difficult colleagues. Academy of Management Journal, 63(3), 743–778.
Task (participation grade):	Based on the required readings, prepare a brief answer to the following question and submit before class: How the authors handle the dependence between observations in their empirical contexts?
Optional Readings:	Kleinbaum, A. M. 2012. Organizational misfits and the origins of brokerage in intrafirm networks. *Administrative Science Quarterly*, 57(3): 407–452. Rank, O. N., G. L. Robins, and P. E. Pattison 2010. "Structural Logic of Intraorganizational Networks." Organization Science, 21: 754–764. Wimmer, A., Lewis, K., 2010. Beyond and Below Racial Homophily: ERG Models of a Friendship Network Documented on Facebook. American Journal of Sociology. 116, 583–642.

Session 5
Thursday, May 25, 2023
9:00–12:00

Session topic	**Hands-on Workshop 2** In this second workshop, we will work with network data in R in order to familiarize ourselves with analytical techniques used in social network analysis, such as QAP (Quadratic Assignment Procedure) and ERGMS (Exponential Random Graph Models).
Required Readings:	Borgatti, S. P., Everett, M. G., & Johnson, J. C. 2013. *Analyzing social networks*. SAGE Publications Limited. Chapters 6 and 8
Optional Readings:	Krackhardt D (1987) QAP partialling as a test of spuriousness. Soc. Networks 9(2):171–186. Pattison, P. E., Robins, G. L., Handcock, M. S., & Snijders, T. A. B. (2006). New Specifications for Exponential Random Graph Models. Sociological Methodology, 36(1), 99–153. Robins, G., Pattison, P., & Woolcock, J. (2005). Small and other Worlds: Global Network Structures from Local Processes. American Journal of Sociology, 110(4), 894–936. Robins, G., Pattison, P., Kalish, Y., & Lusher, D. 2007. An introduction to exponential random graph (p*) models for social networks. Social Networks, 29(2), 173–191. Snijders, T. A. B. (2011). Statistical Models for Social Networks. Annual Review of Sociology, 37, 131–153.

Session 6
Thursday, June 1, 2023
9:00–12:00

Session topic	**Dynamics of networks**
	While much of the existing literature on social network analysis has focused on the analysis of networks observed at one point in time, the increased availability of time stamped data about interaction behavior is calling for the development of new methods and perspectives. In this session we will take a deeper look at the dynamics of networks. We will introduce a statistical model used for longitudinal network data and discuss some more recent models and measures designed specifically for sequences of time stamped relational events.

Required Readings:

Tröster, C., Parker, A., van Knippenberg, D., & Sahlmüller, B. (2019). The coevolution of social networks and thoughts of quitting. Academy of Management Journal, 62, 22-43.

Quintane, E., & Carnabuci, G. (2016). How do brokers broker? Tertius gaudens, tertius iungens, and the temporality of structural holes. Organization Science, 27(6), 1343–1360.

Task (participation grade):

Based on the required readings, prepare a brief answer to the following question and submit before class:
Explain the key differences in the conceptualization and measurement of network dynamics in the two papers.

Optional Readings:

Rivera, M. T., S. B. Soderstrom, & B. Uzzi 2010. "Dynamics of Dyads in Social Networks: Assortative, Relational, and Proximity Mechanisms." Annual Review of Sociology, 36: 91–115.
Block, P., Koskinen, J., Hollway, J., Steglich, C., & Stadtfeld, C. (2018). Change we can believe in: Comparing longitudinal network models on consistency, interpretability and predictive power. Social Networks, 52, 180-191.
Chen, H., Mehra, A., Tasselli, S., & Borgatti, S. P. 2022. Network Dynamics and Organizations: A Review and Research Agenda. *Journal of Management*, (71902088): 014920632110632.
Falzon, L., Quintane, E., Dunn, J., & Robins, G. (2018). Embedding time in positions: Temporal measures of centrality for social network analysis. Social Networks, 54, 168–178.
Kalish, Y. (2019). Stochastic Actor-Oriented Models for the Co-Evolution of Networks and Behavior: An Introduction and Tutorial. Organizational Research Methods, 1–24.
Soda, G., Mannucci, P. V., & Burt, R. S. 2021. Networks, Creativity, and Time: Staying Creative through Brokerage and Network

Rejuvenation. *Academy of Management Journal*, 64(4): 1164–1190.

Session 7
Thursday, June 8, 2023
9:00–12:00

Session topic	**Experiments and Causality in Social Network Analysis** Despite the popularity of experimental approaches in management and related fields, the adoption of experimental research designs—laboratory, natural, or field experiments—has been slow in organizational network analysis. Establishing causal inference in network analysis is important not only to ensure knowledge accumulation but also because of the practical and policy implications of network research. However, relational theories, data, and methods possess peculiarities that need to be accounted for when conducting experiments. We will discuss the ways in which experiments have been used in network analysis to establish causal inferences of network effects.

Required Readings:	Carnabuci, G., & Quintane, E. (2022). When people build networks that hurt their performance: Structural holes, cognitive style, and the unintended consequences of person-network fit. *Academy of Management Journal*. Burt, R. S., Reagans, R. E., & Volvovsky, H. C. (2021). Network brokerage and the perception of leadership. *Social Networks*, *65*: 33–50.
Task (participation grade):	Based on the required readings, prepare a brief answer to the following question and submit it before class: Does network data have specific characteristics that affect the way in which causal inferences can be made? (explain)
Optional Readings:	An, W., Beauvile R., & Rosche, B. (2022). Causal Network Analysis. Annual Review of Sociology, 48: 23-41. Brashears, M. E. (2013). Humans use compression heuristics to improve the recall of social networks. Scientific Reports, 3: 1–7. Frank, K. A., & Xu, R. (2021). Causal Inference for Social Network Analysis. In R. Light & J. Moody (Eds.), The Oxford Handbook of Social Networks: 287–308. Oxford University Press. Krackhardt, D., & Stern, R. (1988). Informal networks and organizational crises: An experimental simulation. Social Psychology Quarterly, 51: 123-140. Robins, G., Lusher, D., Broccatelli, C., Bright, D., Gallagher, C., et al. 2023. Multilevel network interventions: Goals, actions, and outcomes. Social Networks, 72: 108–120. Valente, T. W. (2012). Network interventions. Science, 337: 49–53.

Part 2: Organizational learning, behavioral strategy, and luck

Chengwei Liu

Course Sessions

Session 8
Thursday, June 15, 2023
9:00–12:00

Session topic	**Explorations and exploitations in organizational learning**
	We examine the structure of "exploration mechanisms" that focus on how an attribute A increases performance because it leads to superior experimentation. A specific aim is to understand the first part of the classical March 1991 model.

Required Readings:	March, J. G. (1991). Exploration and exploitation in organizational learning. Organization Science, 2, 71-87.
	Task: focus on the first model, on socialization. Each of you should write a paragraph explaining in the best possible way your answer to the following question:
	"Why is average knowledge highest, in the March 1991 model, when p1 is low and p2 is high? Why should not p2 be low also, or p2 low and p1 high?".
	Jerker C Denrell, Michael Christensen, Chengwei Liu, Thorbjoern Knudsen. Interactions between Conformity-based and Outcome-based Learners: Who should learn fast?. Working Paper

Further Readings	Fang, Christina, Jeho Lee, and Melissa A. Schilling. 2010. "Balancing Exploration and Exploitation through Structural Design: The Isolation of Subgroups and Organizational Learning." Organization Science 21(3):625–42.
	Posen, H. E., D. A. Levinthal. (2012). Chasing a moving target: Exploitation and exploration in dynamic environments. Management Science, 58(3), 587–601.

**Session 9
Thursday, June 22, 2023
9:00–12:00**

Session topic	**The traps of learning from successes and failures**
	Conventional wisdom suggests that alternatives that led to successes should be repeated and alternatives that led to failures should be avoided. Our aim is to understand when this conventional wisdom fails systematically.

Required Readings:	Denrell and March (2001) Adaptation as information restriction: The hot stove effect, Organization Science, Vol. 12, No. 5, 523-538.
	Denrell, Liu and Maslach (2021) Underdogs and One-hit wonders: When is Overcoming Adversity Impressive? Conditionally accepted at Management Science. Paper
	Task 1: why learning from experiences can be a poor teacher in these two models?
	Levinthal, Daniel A., and James G. March. 1993. "The Myopia of Learning." Strategic Management Journal 14(8):95–112.
	Task 2: specify a learning myopia in a context of your interest with its mechanism, consequence as well as possible remedies.
Further Readings	Strang, D. and Macy, M.W. (2001) 'In search of excellence: fads, success stories, and adaptive emulation', American Journal of Sociology, 107 (1), pp. 147.
	Levitt, B., and J. G. March. 1988. "Organizational Learning." Annual Review of Sociology 14:319–40.
	Greve, Henrich R. 2003. Organizational Learning from Performance Feedback: A Behavioral Perspective on Innovation and Change. Cambridge, England: Cambridge University Press.
	Liu, C. (2021). In luck we trust: Capturing the diversity bonus through random selection. *Journal of Organization Design*, *10*(2), 85-91.

Session 10
Thursday, June 29, 2023
9:00–12:00

Session topic	**A random school of thought in organization science** Chance models—mechanisms that explain empirical regularities through unsystematic variance—have a long tradition in the sciences but are marginalized in the management scholarship. During this session, we will have an overview of how this school of thought provides alternative explanations for organizational and management phenomena as well as their implications.

Required Readings:	Liu and Tsay. The Variance of Variance. Forthcoming at Research of the Sociology of Organizations. Paper. *(also quickly read through the 6 original papers by James G March reviewed in this paper, see Further Readings, focus on their mechanisms)* *Task: Based on one of the chance models reviewed, develop a chance model that may provide an alternative explanation for a phenomenon (or empirical regularity) central in your field of interest.*

Further Readings	Denrell, Jerker, Christina Fang, and Chengwei Liu. 2015. "Chance Explanations in the Management Sciences." Organization Science 26(3):923–40. Cohen, Michael D., James G. March, and Johan P. Olsen. 1972. "A Garbage Can Model of Organizational Choice." Administrative Science Quarterly 17(1):1–25. Harrison, J. Richard, and James G. March. 1984. "Decision Making and Postdecision Surprises." Administrative Science Quarterly 29(1):26–42. March, J. C., and J. G. March. 1977. "Almost Random Careers: The Wisconsin School Superintendency, 1940-1972." Administrative Science Quarterly 22(3):377–409. March, J. C., and J. G. March. 1978. "Performance Sampling in Social Matches." Administrative Science Quarterly 23(3):434–53. March, James G. 1996. "Learning to Be Risk Averse." Psychological Review 103(2):309.

March, James G., and Zur Shapira. 1992. "Variable Risk Preferences and the Focus of Attention." Psychological Review 99(1):172–83.

Session 11
Thursday, July 6, 2023
9:00–12:00

Session topic	**Behavioural and organizational decision-making** This session provides an overview of the field of behavioral and organizational decision-making and discusses its implications for management.

Required Readings:	Csaszar, F. A., & Eggers, J. P. (2013). Organizational decision making: An information aggregation view. *Management Science*, *59*(10), 2257-2277. Task: Extend the information aggregation model by Csaszar and Eggers (2013). For details about this project, see this [video](#) Liu, C., Vlaev, I., Fang, C., Denrell, J., & Chater, N. (2017). Strategizing with biases: Making better decisions using the mindspace approach. *California Management Review*, *59*(3), 135-161.
Further Readings	Liu, C. and Arrieta, J. When Noise Becomes Signal: In Search of Contrarian Opportunities from the Blind Spot of the Majority. Working paper [link to be provided].

Session 12
Thursday, July 13, 2023
9:00–12:00

Session topic	**Behavioral strategy** We will introduce a framework of strategy as arbitrage and discuss the source of strategic opportunities that are created by judgment biases, learning traps, resistance to changes, or conformity.

Required Readings:	Liu, C. (2021). Why do firms fail to engage diversity? A behavioral strategy perspective. *Organization Science*, *32*(5), 1193-1209.

Task: Specify a source of the CSRL limits that is not covered in this paper that can create/protect a strategic opportunity.

Denrell, Jerker, Christina Fang, and Sidney G. Winter. 2003. "The Economics of Strategic Opportunity." Strategic Management Journal 24(10):977–90.

Further Readings	Gavetti, Giovanni. 2012. "Toward a Behavioral Theory of Strategy." Organization Science 23(1):267–85.
	Zuckerman, Ezra W. 2012. "Construction, Concentration, and (Dis) Continuities in Social Valuations." Annual Review of Sociology 38(1):223–45.

Session 13
Thursday, July 20, 2023
9:00–12:00

Session topic	**Exceptional performance: Skill or luck?** Conventional wisdom suggests that luck is the residue of rationality and foresight. We will discuss how the impact of luck can be modeled and measured and its implications.

Required Readings:	Liu et al (2022) Testing Non-monotonic Associations in Performance Data. Working paper.
	Denrell, J., and C. Liu. 2021. "When Reinforcing Processes Generate a Outcome-Quality Dip." Organization Science. 32 (4), 1079-1099
	Denrell, Jerker, and Chengwei Liu. 2012. "Top Performers Are Not the Most Impressive When Extreme Performance Indicates Unreliability." Proceedings of the National Academy of Sciences 109(24):9331–36.
	Task: specify another empirical context where performance non-monotonicity can be expected ad tested.
Further Readings	Liu, C. (2020). *Luck: A Key Idea for Business and Society*. Oxford, UK: Routledge.