

EAS 569 Stakeholder Network Analysis (1.5 credits)

Winter A 2019 Syllabus

Time and Location: Fri lecture 10-11:30 in 3556 Dana, Mon lab 11:30-1 in 3325 Dana

Instructor: Paige Fischer, Assistant Professor, SEAS, apfisch@umich.edu, 734-763-3830

Office hours: By appointment

Course overview: Successful planning and management for environmental sustainability are highly dependent on the ability of individual and organizational stakeholders to share information and resources, and collectively solve problems. Understanding relationships among stakeholders can shed light on the conditions that enable or constrain these social processes. Network analysis—the study of patterns of social interaction among individuals and groups—is a tool for examining relationships among stakeholders. Network analysis can be used to identify individuals or groups that are influential, powerful or important in other ways. Network analysis can also be used to assess the collective capacity of a set of stakeholders to address environmental sustainability challenges. This course will introduce students to network approaches for evaluating formal and informal stakeholder networks—the composition and structure of networks and the social processes networks enable and constrain. The course will provide students with an overview of network analysis methods and applications as well as hands-on experience conducting social network analysis to investigate stakeholders in environmental sustainability issues. Class meetings will involve lectures by the instructor, guest speakers, group activities and computer labs. During lab sessions, students will receive instructions for how to calculate measures of network structure covered in the preceding lecture and assigned textbook reading.

Expectations: This is a graduate level course geared toward students in the natural and social sciences who are interested in planning and management for environmental sustainability. The course will entail considerable reading, writing, and hands-on work with data and software programs. Each student is expected to complete weekly reading and lab assignments involving the analysis and interpretation of social network data, and write a final paper.

Learning outcomes: Upon completion of this course, students will be able to:

1. Explain the importance of social network structure to communication, cooperation and problem solving among stakeholders
2. Decide when a social network analysis project would be beneficial for answering a question regarding stakeholders in environmental sustainability
3. Use software programs to map and quantify aspects of stakeholder networks
4. Interpret the results of social network analysis to identify stakeholders that play key roles in determining environmental sustainability goals and outcomes
5. Propose network interventions (i.e., partnerships, coalitions) that may improve stakeholder capacity for solving environmental sustainability problems

Assessment: Progress toward learning outcomes will be assessed through evaluation of:

Lab assignments (5 @ 15 points each)*	75%
Class participation (20 points)	20%

**One point will be deducted on an assignment each day an assignment is submitted late without approval from instructor; if assignments do not conform to instructions, and if assignments contain major spelling or grammatical errors or are otherwise poorly written.*

Lab assignments: Lab assignments are due on Friday before class. For each lab assignment, draft a formal memo from the perspective of an employee of or consultant to an organization that has commissioned a network analysis project to understand a set of stakeholders. The memo should be no more than 500 single-spaced words and no longer than two-pages (i.e., one double-sided page if printed) including figures and tables. Direct the memo to a representative of the organization and include the following information in the narrative:

- (1) Explanation of why the network analysis is important for understanding the question at hand;
- (2) Description of the data and how you analyzed them;
- (3) Description of what you learned about the lab question (include a table and figure);
- (4) Implications of what you found for planning, management or other social processes (e.g.,
- (5) recommendations for how the coordinator could improve the networks with various activities or interventions).

Class participation: Students are expected to come to class prepared to participate actively in class discussions of readings. Students are expected to attend every class unless arranged ahead of time.

Grading scheme: Minimum overall points for A+=97, A=93, A-=90, B+=87, B=80, B-=80, C+=77, C=73, C-=70, D+=67, D=63, D-=60, F=40

Resources: All students are encouraged to make use of the UM Sweetland Writing Center to improve their writing capabilities during this and other courses, <https://lsa.umich.edu/sweetland>

Accommodations for students with disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately

Academic Honesty: Students are expected to be honest and ethical in their academic work. For more information about academic integrity and the University's policies and procedures in this area please refer to the Student Conduct web site.

EAS 569 - 001 Stakeholder Network Analysis Winter A 2019 Course Schedule Paige Fischer <apfisch@umich.edu>

Week	Computer lab (Monday)	Classroom (Friday)	Objectives for the lecture and following lab
1		1/11 Lecture 1: Introduction to course, stakeholders and social network analysis (SNA)	1) Understand course goals, expectations and schedule 2) Become acquainted with key concepts and terms in stakeholder analysis and SNA
2	1/14 Prell 2012 chapter 1 Introduction to dataset and software	1/18 Prell 2012 chapter 3 & Reed et al. 2009 Lecture 2: Investigating stakeholders with a network approach	3) Become acquainted with how to examine stakeholder networks with SNA 4) Become acquainted the UCINET software package
3	1/21 No class MLK Day	1/25 Bodin 2017 Lecture 3: Characterizing the potential for social processes in a network	5) Learn how to use SNA to characterize cohesion, exclusiveness and insularity in a network 6) Understand the network measures of density and centralization
4	1/28 Prell 2012 chapter 8 Lab 1: Network-level measures	2/1 Romolini et al. 2016 & Sandstrom and Rova 2010 Lecture 4: Identifying important actors in a network	7) Learn how to use SNA to identify stakeholders with influence, power and prestige 8) Understand the network measures of centrality
5	2/4 Prell 2012 chapter 4 Lab 2: Actor centrality	2/8 Prell et al. 2009 & Paletto et al. 2015 Lecture 5: Identifying structures for small group dynamics	9) Learn how to use SNA to identify small sets of stakeholders that influence social processes 10) Understand the network measures of brokerage, reciprocity and transitivity
6	2/11 Prell 2012 chapter 5 & 6 Lab 3: Subgraphs	2/15 Fischer et al. 2014 Lecture 6: Identifying coalitions, factions and other subgroups	11) Learn how to identify subsets of stakeholders with preferential access to information and resources 12) Understand the networks concepts of cliques coalitions, factors and other subgroups
7	2/18 Prell 2012 chapter 7 Lab 4: Subgroups	2/22 Ramirez-Sanchez and Pinkerton 2009 Lecture 7: Affiliation networks	13) Learn how to identify networks with information about indirect interactions 14) Learn how to evaluate affiliation networks, ego networks, valued ties, temporal data
8	2/25 Lab 5: Bipartite networks	3/1 Bodin and Crona 2009 Discussion of SNA as a tool for stakeholder analysis	15) Understand the advantages and disadvantages of using SNA to evaluate stakeholder networks and processes

Readings

Required text (on reserve at Shapiro Library as item # 1097731):

Prell, C. 2012. *Social Network Analysis: History, Theory and Methodology*. Thousand Oaks, CA, Sage Publications.

Required articles (on Canvas):

Bodin, Ö. (2017). "Collaborative environmental governance: Achieving collective action in social-ecological systems." *Science* 357(6352): eaan1114.

Bodin, Ö. and B. I. Crona (2009). "The role of social networks in natural resource governance: What relational patterns make a difference?" *Global Environmental Change* 19(3): 366-374.

Fischer, A. P., K. Vance-Borland, K. M. Burnett, S. Hummel, J. H. Creighton, S. L. Johnson and L. Jasny (2014). "Does the Social Capital in Networks of "Fish and Fire" Scientists and Managers Suggest Learning?" *Society & Natural Resources* 27(7): 671-688.

Paletto, A., K. Hamunen and I. De Meo (2015). "Social network analysis to support stakeholder analysis in participatory forest planning." *Society & Natural Resources* 28(10): 1108-1125.

Prell, C., K. Hubacek and M. Reed (2009). "Stakeholder analysis and social network analysis in natural resource management." *Society & Natural Resources* 22(6): 501-518.

Ramirez-Sanchez, S. and E. Pinkerton (2009). "The impact of resource scarcity on bonding and bridging social capital: the case of fishers' information-sharing networks in Loreto, BCS, Mexico." *Ecology and Society* 14(1): 22.

Reed, M. S., A. Graves, N. Dandy, H. Posthumus, K. Hubacek, J. Morris, C. Prell, C. H. Quinn and L. C. Stringer (2009). "Who's in and why? A typology of stakeholder analysis methods for natural resource management." *Journal of Environmental Management* 90(5): 1933-1949.

Romolini, M., J. Morgan Grove, C. L. Ventriss, C. J. Koliba and D. H. Krymkowski (2016). "Toward an understanding of citywide urban environmental governance: An examination of stewardship networks in baltimore and seattle." *Environmental Management* 58(2): 254-267.

Sandström, A. and C. Rova (2010). "Adaptive co-management networks: A comparative analysis of two fishery conservation areas in Sweden." *Ecology and Society* 15(3): 14.

Other resources:

Bixler, R. P., D. M. Wald, L. A. Ogden, K. M. Leong, E. W. Johnston and M. Romolini (2016). "Network governance for large-scale natural resource conservation and the challenge of capture." *Frontiers in Ecology and the Environment* 14(3): 165-171.

Bixler, R. P., S. Johnson, K. Emerson, T. Nabatchi, M. Reuling, C. Curtin, M. Romolini and J. M. Grove (2016). "Networks and landscapes: A framework for setting goals and evaluating performance at the large landscape scale." *Frontiers in Ecology and the Environment* 14(3): 145-153.

Bodin, Ö., B. Crona and H. Ernstson (2006). "Social networks in natural resource management: What is there to learn from a structural perspective?" *Ecology and Society* 11(2).

Butts, C. T. and R. M. Action (2012). "Interorganizational collaboration in the hurricane katrina response." *Journal of Social Structure* 13(1).

Connolly, J. J., E. S. Svendsen, D. R. Fisher and L. K. Campbell (2013). "Organizing urban ecosystem services through environmental stewardship governance in new york city." *Landscape and Urban Planning* 109(1): 76-84.

Crona, B. and Ö. Bodin (2006). "What you know is who you know? Communication patterns among resource users as a prerequisite for co-management." *Ecology and Society* 11(2): 7.

- Cutts, B. B., T. Muñoz-Erickson, K. J. Darby, M. Neff, E. K. Larson, B. Bolin and A. Wutich (2010). "Ego network properties as a way to reveal conflict in collaboration's clothing." Procedia - Social and Behavioral Sciences **4**: 93-101.
- Ernstson, H., S. Barthel, E. Andersson and S. T. Borgström (2010). "Scale-crossing brokers and network governance of urban ecosystem services: The case of stockholm." Ecology and Society **15**(4): 28.
- Fischer, A. P. and L. Jasny (2017). "Capacity to adapt to environmental change: evidence from a network of organizations concerned with increasing wildfire risk." Ecology and Society **22**(1): 23.
- Fischer, A. P., K. Vance-Borland, L. Jasny, K. E. Grimm and S. Charnley (2016). "A network approach to assessing social capacity for landscape planning: The case of fire-prone forests in Oregon, USA." Landscape and Urban Planning **147**: 18-27.
- Fisher, D. R., L. K. Campbell and E. S. Svendsen (2012). "The organisational structure of urban environmental stewardship." Environmental Politics **21**(1): 26-48.
- Mandarano, L. A. (2009). "Social network analysis of social capital in collaborative planning." Society and Natural Resources **22**(3): 245-260.
- Muñoz-Erickson, T. A., B. B. Cutts, E. K. Larson, K. J. Darby, M. Neff, A. Wutich and B. Bolin (2010). "Spanning boundaries in an arizona watershed partnership: Information networks as tools for entrenchment or ties for collaboration?" Ecology and Society **15**(3): 22.
- Muñoz-Erickson, T. A., L. K. Campbell, D. L. Childers, J. M. Grove, D. M. Iwaniec, S. T. A. Pickett, M. Romolini and E. S. Svendsen (2016). "Demystifying governance and its role for transitions in urban social-ecological systems." Ecosphere **7**(11): e01564-n/a.
- Muñoz-Erickson, T. A. and B. B. Cutts (2016). "Structural dimensions of knowledge-action networks for sustainability." Current Opinion in Environmental Sustainability **18**: 56-64.
- Prell, C., M. Reed, L. Racine and K. Hubacek (2010). "Competing structure, competing views: The role of formal and informal social structures in shaping stakeholder perceptions." Ecology and Society **15**(4): 34.
- Romolini, M., J. Morgan Grove, C. L. Ventriss, C. J. Koliba and D. H. Krymkowski (2016). "Toward an understanding of citywide urban environmental governance: An examination of stewardship networks in baltimore and seattle." Environmental Management **58**(2): 254-267.
- Svendsen, E. S., L. K. Campbell, D. R. Fisher, J. J. Connolly, M. L. Johnson, N. F. Sonti, D. H. Locke, L. M. Westphal, C. L. Fisher and M. Grove (2016). "Stewardship mapping and assessment project: A framework for understanding community-based environmental stewardship."
- Vance-Borland, K. and J. Holley (2011). "Conservation stakeholder network mapping, analysis, and weaving." Conservation Letters **0**(0): 1-11.
- Wolf, K. L., D. J. Blahna, W. Brinkley and M. Romolini (2013). "Environmental stewardship footprint research: Linking human agency and ecosystem health in the puget sound region." Urban Ecosystems **16**(1): 13-32.