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

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

**Required articles** (on Canvas):

**Other resources**:


