NRE501.056  Network Analysis for Natural Resource Planning (1.5 credits)

Winter A 2015 Syllabus

Time and Location:

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

Office hours: By appointment

Course overview: Successful natural resource management and environmental conservation are highly dependent on the ability of organizations, agencies, landowners and other stakeholder groups to communicate and cooperate. Understanding the relationships among these different actors can shed light on opportunities and constraints for coordinating plans and actions, and solving collective problems. Network analysis—the study of patterns of social interaction and flows of information and resources among individuals and groups—is a tool for examining relationships among actors in natural resource contexts. Network analysis can be used to identify individuals or groups that are highly influential in relation to a natural resource management issue. Network analysis can also be used to assess the collective capacity of a set of people or organizations to address natural resource challenges. This course will introduce students to network approaches to investigating opportunities and constraints for natural resource planning and management. It will provide students with an overview of social network theories and methods as well as hands-on experience applying social network analysis to answer natural resource management questions.

Expectations: This is an upper level/graduate level course geared toward students in the natural and social sciences who are interested in natural resource planning and management and environmental conservation. The course will entail considerable reading, writing, and hand-on work with data and software programs. Class meetings will involve lectures by the instructor, student-led reflections of the readings, and computer labs. Each student is expected to complete weekly reading and writing assignments, and conduct a term project involving the collection, analysis and interpretation of social network data.

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 individuals and groups
2. Decide when a social network analysis project would be beneficial for answering a natural resource management question
3. Design a social network study including the development of a questionnaire for network data collection
4. Analyze social network data by using software programs to map and quantify aspects of social network structure
5. Interpret the results of social network analysis to identify organizations that play key roles in determining natural resource goals and outcomes
6. Propose changes in social arrangements among individuals and groups (i.e., partnerships, coalitions) that may improve capacity for solving complex natural resource management problems.

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

- Weekly written summaries of the reading 20%
- Weekly assignments relating to a social network analysis project 20%
- Final paper on the social network analysis project 30%
- Final presentation on the social network analysis project 10%
- Class participation 20%

*Weekly reflections on the reading:* On a designated day each week students will post a clearly and tightly written 300-word reflection the assigned reading on CTools. In the written summary the student will identify key concepts introduced in the readings problems and discuss questions and concerns prompted by the readings. Students do not have to discuss each reading in equal depth, but must demonstrate that they read each book chapter or paper carefully. Students are encouraged to review each other’s summaries in preparation for the class discussion.

*Weekly assignments:* Each week students will complete an assignment in the progression of stages of a social network project including the identification of a question that can be addressed with social network analysis, a draft of a questionnaire for collecting social network data and the generation of a map and descriptive statistics through the analysis of social network data with the aid of a software program. Refer to the course schedule for specific assignments.

*Final paper:* A 10-page double-spaced paper (not including references) reporting on the student’s social network analysis project is due on the last day of class. This paper should follow the traditional research paper format with the following sections: Introduction, including research question or hypothesis and objectives; Methods; Results; Discussion and Conclusion, with implications for natural resource planning and management or environmental conservation.

*Final presentation:* Students will present their social network projects to the class.

**Grading scheme:** A=90-100, B=80-89, C=70-79, D=60-69, F=<60

**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 at 737-4098.

**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.