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# BIA-658-A Social Network Analysis

Monday 6:15-8:45PM, Burchard Building 715

## Instructor

Dr. Feng Mai  
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## Office Hours

Monday 3:30PM – 5:30PM and by appointments

## Course Description

This course introduces concepts, theories, and tools of social network and social media analyses. Application areas include customer profiling, community and trend detection, targeting, sentiment analysis, and development of recommendation systems.

## Course Objectives

In this course, students will:

- Master theories of social networks and social behavior
- Acquire techniques for collecting and analyzing social network data
- Apply analytical skills to social network data
- Apply social network analysis in business settings

Additional learning objectives include the development of:

- Written and oral communications skills: students will write a project report and present their projects at the end of the course
- Ability to read and critique academic papers
- Programming skills of R and/or Python
- Team skills: The final project for the course will involve student teams; an online survey instrument will be used to measure individual contributions to team performance.

## Textbooks

1. Golbeck, Jennifer.(2013). *Analyzing the social web*. ISBN: 0124055311

Other reference books (free):

2. Hanneman, R. A., & Riddle, M. (2005). *Introduction to social network methods*. Riverside, California: University of California, Riverside. Available at <http://faculty.ucr.edu/~hanneman/nettext/>. This on-line textbook introduces many of the basics of formal approaches to the analysis of social networks.
3. *Social network analysis: Theory and applications*. A free, Wiki Book [available to download](#). This book is a compilation of Wikipedia articles about and related to social network analysis.

## Grading

Homework 25%: Due the following week after the assignment

- Late submission will be deducted 20%/day

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Participation 10%

Paper Presentation 5%

Midterm 30%

Project + Presentation 30%

### Exam Room Conditions

The midterm exam will be open book, open notes, however communication of any kind is not permitted. Students are not allowed to work with, talk to, email, text, or send instant messages, etc. to others during exams.

### Technology

- Please bring your laptop to class. We will cover examples using R, Python, Gephi, and Netlogo.
- Use a cloud storage for your work

### Academic Integrity

#### Graduate Student Code of Academic Integrity

*All Stevens graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline.*

All graduate students are bound to the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found at [www.stevens.edu/provost/graduate-academics](http://www.stevens.edu/provost/graduate-academics).

#### Academic Improprieties

*The term academic impropriety is meant to include, but is not limited to, cheating on homework, during in-class or take home examinations and plagiarism. The Institute has adopted a procedure to deal with such actions."*

Consequences of academic impropriety are severe, ranging from receiving an "F" in a course, to a warning from the Dean of the Graduate School, which becomes a part of the permanent student record, to expulsion.

### Learning Accommodations

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. Student Counseling and Disability Services works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, and psychiatric disorders in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from SCDS staff. The SCDS staff will facilitate the provision of

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accommodations on a case-by-case basis. These academic accommodations are provided at no cost to the student.

Student Disability Files are kept separate from academic files and are stored in a secure location within the office of Student Counseling, Psychological & Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies. For more information about Disability Services and the process to receive accommodations, visit

<https://www.stevens.edu/sit/counseling/disability-services>

### **Inclusivity statement**

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in education and innovation. Our community represents a rich variety of backgrounds, experiences, demographics and perspectives and Stevens is committed to fostering a learning environment where every individual is respected and engaged. To facilitate a dynamic and inclusive educational experience, we ask all members of the community to:

- be open to the perspectives of others
- appreciate the uniqueness their colleagues
- take advantage of the opportunity to learn from each other
- exchange experiences, values and beliefs
- communicate in a respectful manner
- be aware of individuals who are marginalized and involve them
- keep confidential discussions private

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### Tentative Course Schedule

Lecture	Date	Topics	Textbook Chapter
1	8/31	Introduction	Ch 1
	9/7	No Class (Labor Day)	
2	9/14	Basic Concepts	Ch 2
3	9/21	R and Applications	Ch 4
4	9/28	Network Structure, Generate Graph	Ch 3
5	10/5	Relationships and Position	Ch 5, 6
	10/12	No Class (Fall Recess)	
6	10/13 (Tue)	Propagation	Ch 10
	<b>10/19</b>	<b>Mid-term</b>	
7	10/26	Link Prediction and ER	Ch 9
8	11/2	Community Detection	
9	11/9	Evolution of Networks, Business Applications	
10	11/16	Content Analysis	Ch 7
11	11/23	No In-Class Meeting (Video Lecture on Selected Topics)	
	11/30	Project Presentation	
	12/7	Project Presentation	