CMHT 6500 Big data Implementation in Social Network Analysis

Course Semester: Fall 2016, Tuesday 2:00 pm -4:50 pm, Chilton 388

Course Description: 3 hours.

Theoretical and methodological introduction to the analysis of social media networks: Collecting, analyzing, visualizing and generating insights form the collections of connection formed from a large cloud of favorites, comments, tags, likes, ratings, and links that is applicable across various business sectors.

Prerequisites:

Network analysis involves many methodological approaches and substantive concerns. Though there is some primarily “qualitative” work in social networks, most of it takes a quantitative approach, using diverse elements of mathematics and statistics. Thus, while there are no specific prerequisites, students should be able to understand statistical analysis (e.g., factor analysis, cluster, multiple regression).

Course Objectives:

1. Understand theoretical and methodological concept of Social Network Analysis.
2. Collect, analyze, visualize and interpret big data of a large cloud of favorites, comments, tags, likes, ratings, and links by employing NodeXL and Netdrew.
3. Develop a case study by integrating topics, theory and research findings.

Course Format: The class will be conducted in a mixed lecture/seminar/workshop format.

- The lectures will, instead of following the assigned readings in exact detail, provide alternative perspectives and additional illustrations for the topics covered in the readings.
- The seminars will be generated by leaders who are designate on the specific topics and dates. Preview and review of all reading materials are essential to comprehend the topics.
- The workshops will focus on practices of data management and interpretation being familiar with NodeXL program.

Instructor: Dr. HaeJung Maria Kim
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E-mail: hjkim@unt.edu
Office Hours: by an appointment.
Textbooks: Two books will serve as primary references.


Other Materials are selected to cover a wide range of interests, and they lead to background materials, applications, and/or substantive examples.

- Software: While any that serves your purpose is acceptable, NodeXL will be the one we rely on in class. NodeXL, a Webometric Analyst program, gathers data from social media platforms and analyzes various types of social networks such as communication and inter-organizational collaboration. It comes packaged with a visualization program, NETDRAW.

**REQUIREMENTS AND GRADES**

In addition to attending lectures/seminars/workshops and doing the reading, the course requires that you work through several exercises, prepare four lab assignments, and submit a term paper at the end of the semester. As a rule, submit hardcopies of your written work along with electronic ones.

In approaching the reading and writing, I recommend that you organize your thoughts in terms of the following questions:

- **What are the key ideas?** Why do they (you) think that their (your) topic or question is important? What do they (you), implicitly or explicitly, regard as incomplete in existing research such that their (your) research constitutes a significant contribution? And to what extent do you regard their (your) work as making an important contribution to the larger questions that animate the line of research?

- **What are the main hypotheses?** What distinguishes the theoretical viewpoint of theirs (yours) under consideration? What causal mechanism or mechanisms do they (you) focus on and why? What are the potential advantages of a given focus and what are the drawbacks? Are there alternative theoretical perspectives or models?

- **What types of evidence do they (you) bring to bear to support the argument?** Which sorts of analyses do they (you) find most compelling and why?

**1) Class Participation (20 pts.):**

First and foremost, your participation is essential for the success of the class. It will work best when you focus on the connections between what you are reading and your own research interests. The grade for this will depend on both quantity (how active) and quality (how thoughtful, critical, and creative) of such factors as:
• completing the readings timely and being prepared for each class;
• demonstrating engagement with and understanding of the assigned materials;
• speaking up, discussing relevant issues;
• asking questions and responding to questions by others

(2) Leading Seminar Sessions (20 pts.)

For each week after the fourth, those who signed up to lead the session will prepare a brief presentation along with a memo. In it, you will present some issues or questions for discussion arising from the reading. The focus is to be on its theoretical and substantive aspects, going beyond just recapping the details of textbook. Develop an idea, concept, or substantive application from them. Look for opportunities to integrate ideas from other sources, including the materials from earlier weeks or extending the references from the textbook, and suggest potential ways to advance inquiry through novel approaches to the topic. Be succinct (no more than 2 pages) and have it circulated timely via BB mail to all—by Monday evening (5:00 pm)—so that it can be read by everyone before class. You may also want to prepare visual aids, such as PowerPoint slides.

All of you should be able to lead a seminar at least once during the semester. Send me an e-mail indicating your preferences.

(3) Review Paper (50 pts.):

For the midterm assignment (week 2, 3, & 4), either critically review papers that deals with social media networks, or briefly review a substantive literature of interest to you that involves big data issues. Please note the due dates and turn those in through BB drop box. The criteria of grading are:

• Overview (30%) Clear and concise overview of the topic
• Argument (40%) Well-argued, presentation of writer’s position
• Credibility (30%) Specific support for writer’s argument from credible sources

(4) Lab Assignments (70 pts.):

The fourth requirement is a set of assignments handed out in class. They are due at week 6, 7, 11 & 14 class meeting. Since the content of the class builds cumulatively, it is important to do the assignments on time.

(4) Term Paper (40 pts.):

The main requirement for the class is an original research paper that deals with a substantive area of interest to you, taking a SNA approach. Written in the format of a short journal article, the paper should be approximately 10 double-spaced pages in length (about 2,000–3,000
words) with no more than 20 references. I opt for this format instead of proposal/prospectus for such a paper, for I think you will learn more about network analysis by actually applying it rather than by proposing to apply it. In the last week of the semester (week 15, Dec. 3rd), we will have a workshop for you to circulate and present a draft of the paper for discussion. The paper itself is due on Dec. 9.

The choice of topic is up to you, but state the problem, review relevant literature, lay out appropriate research design, evaluate the data needs and availability, interpret findings, conclude research contribution and implication, and include a bibliography of key references.

**TENTATIVE SCHEDULE**

Following is a tentative schedule with the assigned readings. This should serve as a guide for planning student reading and writing. Changes, if and when necessary, will be announced.

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<th>Week</th>
<th>Topic</th>
<th>Assignment</th>
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<td>Part 1</td>
<td>Week 1 8/30 Overview &amp; Logistics</td>
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<td><strong>Lecture 1:</strong> Smart Consumer Experience</td>
<td>Due of paper 1 &amp; 2 Summary</td>
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<td>Week 2 9/6 <strong>Lecture 2:</strong> Theoretical Foundations Social Capital, Digital Engagement</td>
<td>Due of paper 3 summary</td>
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<td>Week 3 9/13 <strong>Lecture 3:</strong> Chapter 1. Intro to social media networks</td>
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<td>Week 4 9/20 <strong>Lecture 4:</strong> Social Network Analysis (SNA): Concepts and Methods</td>
<td>Due of paper 4 &amp; 5 summary</td>
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<td>Part 2</td>
<td>Week 6 9/27 <strong>Seminar 1:</strong> Chapter 3. Social Network Analysis: Measuring, Mapping, and Modeling Collections of Connections</td>
<td>Leader 1: Due of Lab Assignment 1</td>
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<td>Week 7 10/4 <strong>Seminar 2:</strong> Chapter 4. Getting started with NodeXL, Layout, Visual Design, and Labeling</td>
<td>Leader 2: Due of Lab Assignment 2</td>
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<td>Week 8 10/11 <strong>Seminar 3:</strong> Chapter 5. Calculating and Visualizing Network Metrics</td>
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<td>Week 9 10/18 <strong>Seminar 4:</strong> Chapter 6. Preparing Data and Filtering</td>
<td>Leader 4:</td>
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<td>Week 10 10/25 <strong>Seminar 5:</strong> Chapter 7. Clustering and Grouping</td>
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<td>Part 3</td>
<td>Week 11 11/1 <strong>Workshop 1:</strong> Social Media Network Analysis Case Studies: Facebook</td>
<td>Due of Lab Assignment 3</td>
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<td>Week 12 11/8 <strong>Study day</strong></td>
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<td>Week 13 11/15 <strong>Workshop 2:</strong> Social Media Network Analysis Case Studies: Twitter</td>
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<td>Week 14 11/22 <strong>Workshop 3:</strong> Social Media Network Analysis Case Studies</td>
<td>Due of Lab Assignment 4</td>
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<td>Week 15 11/29</td>
<td><strong>Case presentation &amp; Discussions</strong></td>
<td>All students</td>
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<td>Week 16 12/6</td>
<td><strong>Due of the written final Report</strong></td>
<td>Due by midnight, 12/6</td>
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