Prerequisites: None.
Time: Fall 2014, Mondays and Wednesdays at 4-5:20pm, KAP146
Instructors: Professors Kristina Lerman (lerman@isi.edu)
Office: ISI 932

Course Introduction
The phenomenal growth of social media has transformed the social, political, and technological landscape. Social media sparked an information revolution by putting knowledge production and communication tools in the hands of the masses. Today on sites such as Twitter, Facebook, and YouTube, large numbers of people publish rich content, annotate it with descriptive metadata, communicate and collaborate with others. Social media promises to transform how we create and use knowledge, respond to disasters, monitor environment, manage resources, and interact with the world and one another. By exposing individual and collective behavior, social media delivers large quantities of social data for analysis, offering new research opportunities and challenges.

This course will examine topics in social data analysis, including influence and centrality, information diffusion, sentiment analysis, modeling collective dynamics and show how AI, social network analysis, and statistical methods can be used to study these topics. While there are no prerequisites, I expect students to be proficient in programming, algorithms and data structures, and have taken college level or above courses in linear algebra and statistics. AI and machine learning coursework is a plus.

Course Requirements
There are no required textbooks. The reading material is based on recently published technical papers available via the ACM/IEEE/Springer digital libraries. All USC students have automatic access to these digital archives.

Grading
The class will run as a seminar course with student participation and presentations (30% of the grade) and weekly quizzes (30% of the grade). An integral part of the course is the class project (40% of the grade) using real-world social media data.

Statement for Students with Disabilities
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.
Statement on Academic Integrity
USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

Emergency Preparedness/Course Continuity in a Crisis
In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.
Topics and Readings

- **Week 1: August 25**
  - Topic: Course Introduction

- **Week 1: August 27**
  - Topic: Phenomenology of social media
  - Readings:

- **Week 2: September 1**
  - Labor Day

- **Week 2: September 3**
  - Topic: Network Analysis Basics
  - Readings:

- **Week 3: September 8**
  - Topic: Topic Analysis Basics
  - Readings:

- **Week 3: September 10**
  - Topic: Sentiment Analysis
  - Readings:

- Quiz 1

- Week 4: September 15
  - Topic: Influence and Centrality in Social Networks
  - Readings:

- Week 4: September 17
  - Topic: Influence and Centrality in Social Networks
  - Readings:
    1. E Bakshy, J. M. Hofman, W. A. Mason, D. J. Watts. 2011 “Everyone’s an influencer: quantifying influence on Twitter” In Proceedings of Int. Conf. on Web Search and Data Mining (WSDM)
  - Quiz 2

- Week 5: September 22
  - Topic: Wikipedia knowledge extraction
  - Readings:


**Week 5: September 24**

**Topic: Search query logs**

**Readings:**


**Quiz 3**

**Week 6: September 29**

**Topic: Information diffusion**

**Readings:**


**Week 6: October 1**

**Topic: Information diffusion**

**Readings:**


• Quiz 4

• Week 7: October 6
  • Topic: Social ties and information diffusion
  • Readings:

• Week 7: October 8
  • Topic: Social ties and link prediction
  • Readings:

• Project proposals due
• Quiz 5

• Week 8: October 13
  • Topic: Social Spam and Malicious Behavior
  • Readings:

• Week 8: October 15
  • Topic: Social Spam and Malicious Behavior
• **Readings:**

• **Quiz 6**

**Week 9: October 20**

• **Topic: Geospatial social data mining**

• **Readings:**

• **Week 9: October 22**

• **Topic: Geospatial social data mining**

• **Readings:**
  • Backstrom, L., Sun, E., Marlow, C. 2010 “Find me if you can: improving geographical prediction with social and spatial proximity.” In *Proceedings of the 19th international conference on World Wide Web*.
  • [optional] Scellato, S., Noulas, A., Lambiotte, R., Mascolo, C. 2011 “Socio-spatial Properties of Online Location-based Social Networks” In *Proceedings of the 5th International AAAI Conference on Weblogs and Social Media (ICWSM)*
  • **Quiz 7**

• **Week 10: October 27**
• **Topic: Privacy in a Networked World**

• **Readings**

   [http://www.ted.com/talks/jennifer_golbeck_the_curly_fry_conundrum_why_social_media_likes_say_more_than_you_might_think](http://www.ted.com/talks/jennifer_golbeck_the_curly_fry_conundrum_why_social_media_likes_say_more_than_you_might_think)

• **Week 10: October 29**

• **Topic: Health**

• **Readings:**


• **Quiz 8**

• **Week 11: November 3**

• **Topic: Politics and Social Media**

• **Readings:**


• **Week 11: November 5**

• **Topic: Predicting the future with social media**

• **Readings:**

5. [optional] D. Gayo-Avello, “I wanted to predict elections on Twitter, but all I got was this lousy paper.” http://arxiv.org/abs/1204.6441

• Project mid-term report due
• Quiz 9

• Week 12: November 10
  • Topic: Emotional contagion
  • Readings:

• Week 12: November 12
  • Topic: Friendship paradox and detection of contagions
  • Readings:

• Quiz 10

• Week 13: November 17
  • Topic: Crowdsourcing with Mechanical Turk
- **Readings:**

- **Week 13: November 19**
  - **Topic: Social tagging and folksonomies**
  - **Readings**
  - **Quiz 11**

- **Week 14: November 24 (Or class presentations, depending on enrollement)**
  - **Topic: Social Multimedia Analysis: Videos**
  - **Readings:**

- **Week 14: November 26**
  - **Thanksgiving Holiday**

- **Week 15: December 1**
  4. Class presentations
• Week 15: December 3
  1. Class presentations