

**San José State University
Computer Science Department
CS185C, Section 2, Social Networks, Fall 2016**

Course and Contact Information

Instructor:	Aikaterini Potika
Office Location:	MacQuarrie Hall 215
Telephone:	408-9245134
Email:	katerina.potika@sjsu.edu
Office Hours:	T 1:30-3:30 or by appointment
Class Days/Time:	MW 9:00-10:30am
Classroom:	MacQuarrie Hall 225
Prerequisites:	CS 146 (with a grade of "C-" or better in each); or instructor consent.

Course Format

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Learning Management System course login website at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through MySJSU at <http://my.sjsu.edu> (or other communication system as indicated by the instructor) to learn of any updates.

Course Description

The rise of the Web and social media has created complex computing systems in which the technological as well as the human-imposed challenges require new approaches. In this course we will study such modern social computer networks, by unifying tools from different disciplines such as computer science, economics and social sciences. We will cover graph theory, game theory and mechanism design, information networks and search, social dynamics, aggregate behavior, ad auctions, voting etc.

Required Texts/Readings

Textbook

Networks, Crowds, and Markets: Reasoning About a Highly Connected World, 1st Edition by David Easley (Author), Jon Kleinberg (Author)

ISBN-13: 978-0521195331

ISBN-10: 0521195330

Other Readings

- Social and Economic Networks, by Matthew O. Jackson, ISBN: 9780691148205
- Social Media Mining An Introduction by Reza Zafarani, Mohammad Ali Abbasi, Huan Liu, ISBN: 9781107018853
- Online resources

Software

<https://gephi.github.io/>

<http://ccl.northwestern.edu/netlogo/index.shtml>

<https://www.r-project.org/>

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on.

Homework assignments: individual, regularly assigned will include written problem assignments, and perhaps some online exercises. Solutions will be not posted. The homework is a tool for you to learn the material and prepare for the exams.

Reading assignments: Reading assignments will regularly be for the next class (see schedule).

Quizzes: Unannounced quizzes (at least 4) may be given during class, each taking about 5 minutes total. These will generally be problems from the reading assignment and/or the homework.

Group Project: A programming project of your choice related to the course in groups of two students. Never use any code you find on the web, unless given by me. Penalty for late submission 5% for every 3 days up to 9 days, after that no submission will be accepted.

Participation: In class participation, online polls etc.

Midterm exams: There will be two written Midterm exams during the semester.

Final Examination or Evaluation

Final exam: One written final exam.

The exams will contain multiple choice questions, short answer questions and questions that require pseudocode and/or computations.

Grading Information

Students must obtain >50% in each component of the course (programming & quizzes & written exams) in order to be eligible for a grade of C- or better.

Determination of Grades

Final Grade:

15% Project
 10% Homework
 5% Participation
 10% Quizzes
 30% Midterms
 30% Final

Exams are closed book, final exam is comprehensive. No extra point options. No make-ups exams except in case of verifiable emergency circumstances.

A+	A	A-	>90
B+	B	B-	>75
C+	C	C-	>60
D+	D	D-	>45
F			<40

Classroom Protocol

Attendance is highly recommended. Please avoid disturbing the class: turn-off cell phones (or put them on vibrate mode), no text messaging in the class or the exams, **no taking pictures and video**, avoid coming late. The course material cannot be shared publicly without my approval.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>

CS185C Section 2: Social Networks, Fall 2016

The schedule is subject to change with fair notice. Chapters are from textbook.

Week 1: Graphs - Ch 1, 2.1–2.3

Week 2: Centrality, Strong/Weak Ties, Homophily - Ch 3.1–3.3, 3.5, 4.1, other

Week 3: Random graphs, Positive and Negative Relationships- Ch 5.1–5.3, other

Week 4: Intro to Game Theory - Ch 6.1–6.3

Week 5: Nash Equilibrium – Ch 6.4–6.9

Week 6: Modeling Network Traffic as Game Theory - Ch 8.1–8.2

Week 7: Auctions & Markets- Ch 9.1–9.6, 10.1–10.2

Week 8: Markets – Ch 10.3; 10.4–10.5, 11.1–11.2

Week 9: Network Models of Markets - Ch 11.3–11.4, 12.1–12.3

Week 10: Web – Ch 13

Week 11: Web search - Ch 14.1–14.4

Week 12: Sponsored Search Markets - Ch 15.1–15.3; 15.5–15.6, 15.8

Week 13: Information Cascades - Ch 16.1–16.2; 16.3–16.4

Week 14: Network effects, Power laws – Ch 17.1–17.2; 17.3–17.5; 18

Week 15: Aggregate Behavior- Ch 22.1–22.4; 23.1-23.4; 24.1-24.2

Week 16: Small World Phenomenon - Ch 20

Midterm Exams: Th 9/29 and Th 11/10

Final exam: F 12/16 7:15-9:30am