San José State University
School/Department
CS185C, Introduction to Social Network Analysis (covid-19 edition), Section 2, Fall, 2020

Course and Contact Information

Instructor(s):	Aikaterini Potika
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Email:	katerina.potika@sjsu.edu
Office Hours:	Tuesday 2-3pm & Wednesday 11am-12pm or by appointment
Class Days/Time:	Tuesday& Thursday 12-1:15pm
Classroom:	Zoom meeting (see canvas for link
Prerequisites:	CS 146 (with a grade of "C-" or better in each); or instructor consent.

Course Description (Required - Delete the word “Required” in final draft)

The Web and social networks are complex networks. We will study them by unifying tools from different disciplines: computer science, economics, and social sciences. Topics include graph theory, information networks, search, advertisement, auctions etc.

Course Format

Technology Intensive, Hybrid, and Online Courses

The course will be online hybrid. for the CS Dept is online synchronous zoom meetings plus recording lectures, thus allowing students to listen to recorded lecturers asynchronously.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

- CLO1. Discuss graph theory used to predict and determine network behavior
- CLO2. Reflect on the basic topics of behavior analysis
- CLO3. Carry out the basics of web search, sponsored and matching markets
- CLO4. Determine network properties and features in real world settings
- CLO5. Integrate different approaches from computer science, economics and social studies to design complex networks
- CLO6. Carry out network analysis using various software and visualizations

- CLO7. Summarize main tools to analyze complex networks

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

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Other technology requirements / equipment / **material**

Software

https://gephi.github.io/

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

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

https://networkx.github.io

Network Data Repositories

https://snap.stanford.edu/data/

http://konect.uni-koblenz.de

Course Requirements and Assignments

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus."

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

Reading and Video assignments: Reading assignments and posted videos are regular and for the next class (see schedule).

Quizzes: regular quizzes are online or offline. Cover topics from the reading and video assignment and/or the homework.

Participation: Contribution during zoom meetings and in the discussion forum.

Group Project: A programming project of your choice related to the course's topics in groups of two students and to cover CLO 6 and CLO 7. 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. Final presentation at the end of the semester is mandatory.

Midterm exam: One Midterm exam during the semester.

Final Examination or Evaluation

One final, written, and cumulative exam, split in two parts. The exams contain multiple-choice questions, short answer questions and questions that require pseudocode and/or computations.

Grading Information

No extra point options (only the final exam offers extra points option). Final exam is comprehensive.

Grading Information

Determination of Grades

No make-ups exams except in case of verifiable emergency circumstances. *Penalty for late submission, 5% for every 3 days up to 9 days, after that no submission is accepted (without counting weekends).* Never email your assignments, always upload to Canvas. Rubrics and examples will be given.

Final Grade:

25% Project
10% Quizzes
10% Homework
10% Participation
20% Midterm
25% Final

Grade	*Percentage*
A plus	96 to 100%
A	93 to 95%
A minus	90 to 92%
B plus	86 to 89 %
B	82 to 85%
B minus	78 to 82%
C plus	74 to 77%
C	70 to 73%
C minus	65 to 69%
D plus	62 to 64%
D	58 to 61%
D minus	55 to 57%
F	<54%

Classroom Protocol

During zoom meetings: camera on, mute yourself (unless you have a question or want to contribute), and dress appropriately. Private interactions with other students are prohibited unless you are in a breakroom. 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, no talking or whispering with other students during instructor's presentation. You may not publicly share or upload material of this course such as exam questions, lecture notes, or solutions without my consent.

University Policies

Per University Policy S16-9 *(http://www.sjsu.edu/senate/docs/S16-9.pdf)*, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (http://www.sjsu.edu/gup/syllabusinfo), which is hosted by the Office of Undergraduate Education. Make sure to visit this page to review and be aware of these university policies and resources.

The instructor reserves the right to drop students that do not show up during the first two lectures.

CS 185 C Section 2 / Introduction to Social Network Analysis (COVID-19 edition), Fall 2020, Course Schedule

The schedule is subject to change with fair notice and announced on Canvas.

The schedule is subject to change with fair notice and how the notice will be made available

Lesson	Date	Topic	Reading/Projects (part of chapters covered)
1	8/20	Introduction	Chapters 1, 2
2	8/25	Graphs	Chapter 2
3	8/27	Graphs, Visualizations	Chapter 2
4	9/1(drop)	Centrality measures	Other resources
5	9/3	Centrality measures	Other resources

6	9/8(add)	Strong/Weak Ties	Ch 3
7	9/10	Graph Partitioning	Ch 4
8	9/15	Graph Partitioning	Ch 4
9	9/17	Homophily/Segregation	Ch 4
10	9/22	Positive and Negative Relationships, Structural Balance	Ch 5
11	9/24	Positive and Negative Relationships, Structural Balance	Ch 5
12	9/29	Behavior Analysis, Game Theory	Ch 6, 8
13	10/1	Behavior Analysis, Game Theory	Ch 6, 8
14	10/6	Auctions and Markets	Ch 9, 10
15	10/8	Auctions and Markets	Ch 9, 10
16	10/13	Sponsored Search Markets	Ch 15
17	10/15	Sponsored Search Markets	Ch 15
	10/20	**Midterm**	
18	10/22	Structure of the Web	Ch 13
19	10/27	Link Analysis, Web Search	Ch 14
20	10/29	Link Analysis, Web Search	Ch 14
21	11/3	Information Cascades	Ch 16
22	11/5	Properties of graphs and random graphs	Ch 18,20
23	11/10	Rich get richer phenomena (power laws), diffusion in networks	Ch 18,20
24	11/12	Epidemics	Ch 21
25	11/17	Voting	Ch 23

26	11/19	Graph and node embeddings	other
27	11/24	Graph classification, link prediction, higher order structures	other
28	12/1	Project presentations	
29	12/3	Project presentations	
		Final exam Thursday December 10 | 09:45-12:00	