

CS224W: Course Information

Instructor Jure Leskovec

Office Hours: Tuesdays 9:00-10:00AM, Gates 418

Co-Instructor Michele Catasta

Office Hours: Thursdays 5:00-7:00PM, Gates 452

Lectures 3:00PM-4:20PM Tuesday and Thursday in NVIDIA Auditorium, Huang Engineering Center

Course website <http://cs224w.stanford.edu>

Contact

- For course related questions, use Piazza: <http://piazza.com/stanford/fall2018/cs224w> (use access code “snap” to register)
- For other requests, e-mail us at cs224w-aut1819-staff@lists.stanford.edu
- SCPD students can attend office hours remotely via a Google Hangout; the link will be posted on Piazza just before the office hours start.

TAs (check the website for times and locations of the office hours)

- Michele Catasta (pirroh) [head TA]
- Alex Haigh (haighal)
- Alexander Wang (aswang96)
- Javier Sagastuy Brena (jvrsgsty)
- Jayadev Bhaskaran (jayadev)
- Megha Jhunjhunwala (meghaj)
- Shuyang Shi (bsnsk)

Topics

- Six degrees of separation
- Models of the small world
- Network Inference
- Network Robustness
- Power-laws and Preferential attachment
- Models of network evolution
- Cascading behavior in networks
- Models of network cascades
- Influence maximization in networks
- Knowledge Graphs and Metapaths
- Finding communities and clusters in networks
- Spectral clustering and large scale community structure in networks
- Modularity and large scale community structure in networks
- Message passing and Node classification
- Network motifs, Structural roles in networks
- Link analysis, Pagerank
- Node Representation Learning, Node2Vec
- Graph Convolutional Networks

Course Grading

- 1 setup assignment (1%) + 3 (9.6% each) homework requiring coding and theory (30%)
- 2 hour open-book exam (30%)
- Final project: proposal, milestone report, poster presentation, and final report (40%)
- Piazza and course participation, contributions to the SNAP codebase (extra credit factored in during grading)

Assignment Policy

Questions We try very hard to make questions unambiguous, but some ambiguities may remain. Ask (i.e., post a question on Piazza) if confused or state your assumptions explicitly. Reasonable assumptions will be accepted in case of ambiguous questions.

Honor Code We strongly encourage students to form study groups. Students may discuss and work on homework problems in groups. However, each student must write down the solutions independently. That is, each student must understand the solution well enough in order to reconstruct it by him/herself. In addition, each student should write down the set of people whom s/he collaborated with.

Late Submissions Each student will have a total of 2 late periods to use for homework. Homework are due on Thursdays and late periods extend to midnight (11:59PM) on the following Monday. Only one late period can be used per assignment, and no assignment will be accepted more than one late period after its due date (modulo a 15min grace period). Late periods can also be used for the submissions related to the final project (i.e., proposal and milestone) **except** the final writeup.

Assignment Submission All students (SCPD and non-SCPD) submit their homework via Gradescope (<http://www.gradescope.com>, entry code 9ZZ2XY). Students can typeset or scan their homework. Make sure that you answer each question on a *separate page*. That is, one answer per page regardless of the answer length. To register for Gradescope, please use your Stanford email (if non-SCPD) and Stanford ID number. Students also need to upload their code at <http://snap.stanford.edu/submit>. Put all the code for a single question into a single file and upload it.

Prerequisites

Students are expected to have the following background (recitation sessions will refresh these topics):

- Knowledge of basic computer science principles, sufficient to write a non-trivial computer program (e.g., CS107 or CS145 or equivalent are recommended.)
- Familiarity with the basics of probability theory (CS109 or Stat116 are sufficient but not necessary.)
- Familiarity with the basics of linear algebra (any one of Math 51, Math 103, Math 113, or CS 205 would be much more than necessary.)

Materials

Notes and reading assignments will be posted on the course website. Selected readings for the class will be from: *Networks, Crowds, and Markets: Reasoning About a Highly Connected World* by D. Easley and J. Kleinberg (PDFs available online).

Important Dates

Assignment	Out	Due
Homework 0	now	October 4
Homework 1	September 27	October 11
Project proposal		October 18
Homework 2	October 11	October 25
Project milestone		November 8
Homework 3	October 25	November 15
Exam		November 29
Project final report		December 9 (no late periods)
Project poster session		December 11, 3:30-6:30PM

We will also hold 2 review sessions (**which will be recorded**) in the first two weeks of the course:

- SNAP.PY, scalable network analysis in Python: Gates B01, Friday 09/28, 2:30 - 3:20 PM
- Review of probability, linear algebra, and proof techniques: Gates B01, Friday 10/5, 2:30 - 3:20 PM