

San José State University
College of Science/Department of Computer Science
CS 256, Topics in Artificial Intelligence, Section 1, Spring, 2020

Course and Contact Information

Instructor:	Dr. Teng Moh
Office Location:	MQH 411
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Office Hours:	MW 15:30 to 16:20 [See University Policy S12-1 at http://www.sjsu.edu/senate/docs/S12-1.pdf for guidelines]
Class Days/Time:	MW 16:30 to 17:45
Classroom:	MQH 422
Prerequisites:	CS 156 or instructor consent

Course Description

Course Description: Introduction to topics in artificial intelligence such as problem solving methods, game playing, understanding natural languages, pattern recognition, computer vision and the general problem of representing knowledge. This section focuses specifically on the algorithmic aspect of Unsupervised Learning and Anomaly Detection, and their applications to Deduplication.

Course Learning Outcomes (CLO)

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

1. CLO 1 *understand unsupervised learning*
2. CLO 2 *understand anomaly detection*
3. CLO 3 *design new tools for applications based on the above techniques*

Required Texts/Readings

Textbooks

- *Pang-Ning Tan, Michael Steinbach, Anuj Karpatne, and Vipin Kumar, **Introduction to Data Mining**, Addison Wesley, 2nd ed, 2018, ISBN: 978-0133128901 [Students can obtain the eText at VitalSource for \$27.99.]*
- *TBA*

Other Readings [Optional]

- *TBA*

Other equipment / material requirement

- *Wireless laptop*

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. More details about student workload can be found in [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) at <http://www.sjsu.edu/senate/docs/S16-9.pdf>.

Homework is due typewritten (include source code, but not executable files) by class starting time on the due date. Each assigned problem requires a solution and an explanation (or work) detailing how you arrived at your solution. Cite any outside sources used to solve a problem. When grading an assignment, I may ask for additional information. A subset of the assigned problems will typically be graded.

Refer the course website for latest information of homework assignments.

NOTE that [University policy F15-12](http://www.sjsu.edu/senate/docs/F15-12.pdf) at <http://www.sjsu.edu/senate/docs/F15-12.pdf> states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

Examinations

One mid-term exam scheduled approximately at the end of 9th week, and a final exam scheduled on Wednesday, May 13, 14:45-17:00.

Grading Policy

Grading information:

- *I will determine letter grades for the course, including +/- grades based on*

Percentage	Grade
92 and above	A
90 - 91	A-
88 - 89	B+
82 - 87	B
80 - 81	B-
78 - 79	C+
72 - 77	C
70 - 71	C-
60 - 69	D
59 and below	F

- *List of the percentage weight [or point value] assigned to various class assignments*
 - *Homework: 20%*

- Midterm (Wednesday, 3/18): 20%
- Project: 30%
- Final (Wednesday, May 13, 14:45 – 17:00): 30%
- **No** make-up exams will be given and **no** late homework will be accepted.

Classroom Protocol

- *Always start your email subject with “CS256” to get my attention.*
- *Wireless laptop is required. Your laptop must remain closed (preferably in your backpack and, in any case, not on your desk) until I inform you that it is needed for a particular activity.*
- *Cheating will not be tolerated, but working together is encouraged*
- *Student must be respectful of the instructor and other students. For example, but not limited*
 - *Turn off cell phones*
- *To encourage participation from students, **no** recording is allowed.*

University Policies

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>. **Make sure to visit this page, review and be familiar with these university policies and resources.**

CS 256, Spring 2020, Course Schedule

The schedule is subject to change with fair notice and the notice will be made available in class.

Course Schedule

Week	Topics, Readings, Assignments, Deadlines
2	K-means and its variations
3	Agglomerative Hierarchical Clustering
4	DBSCAN and Density-Based
5	Prototype-Based
6	Graph-Based
7	Scalable Clustering
8	Statistical Approaches
9	Review & Midterm Exam (Wed., 3/18)
10	Proximity-based Approaches
11	Spring Recess
12	Clustering-based Approaches
13	Reconstruction-based Approaches
14	Applications of Unsupervised Learning
15	Applications of Anomaly Detection
16	Applications of Hybrid Techniques
17	Review
Final Exam	Wednesday, May 13, 14:45-17:00