

CS 267 Topics in Database Systems

Introduction to Data Science

Deep Data Analysis

1. Course Information

Instructor: [Dr. Tsau Young Lin](#)

Department of Computer Science

College of Science, San Jose State University.

Spring Semester, 2017

Course Title	Principles of Database System – Data Science for Big Data						
Course No	CS267						
Section No	Code	start	End	Days	building	rooms	
1		18:00	19:15	TTH	MH	222	
Office Hours:	TTH 10:00-10:30(at DH 450);13:15-13:45 (at MH 214); 19:15-19:45 (at MH 214)						
Office	MH214						
Office Phone:	(408)924-5121						
E-mail:	ty.lin@sjsu.edu						
Department Fax:	(408)924-5062						

2. Course Description

a. Course Overview and Description:

[SJSU Catalog](#) describes this course as follows: "Advanced topics in the area of database and information systems. Content differs in each offering. Possible topics include though not restricted to: Data Mining, Distributed Databases and Transaction Processing. Prerequisite: CS 157B."

However, the class (two Dr. Lin's classes) will not follow it closely; database has been moving swiftly and the catalog has not reflected the changes: See the schedule for details

b. Prerequisites: CS157B (with a grade of "C-" or better) or instructor consent

c. 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 S12-3](#) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

University Rules

NOTE that [University policy F69-24](#) at <http://www.sjsu.edu/senate/docs/F69-24.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."

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See [University Policy F13-1](#) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

3. Textbook

1. <http://infolab.stanford.edu/~ullman/mmds/book.pdf>

2. Database Systems-The Complete Book, Hector Garcia-Molina, Jeffrey D. Ullman. Jennifer Widom, Prentice Hall, 2002

4. Supplemental reference: Research papers

5. Student learning objectives for the course:

To understand the fundamentals of current research directions and topics in Data Science.

6. Course Plan:

Vasant Dhar, PhD, **Editor-in-Chief of Big Data** stated:

Data Science is a study of generalizable extraction of knowledge from data.

In this definition, the term knowledge has not been explicitly defined. In this class, we will regard it as the Structure of Data Patterns. So in the first phase, we will focus on various algorithms in mining data patterns. In second phase, we will investigate the mathematical structures of the collection of these patterns. In relational databases, data patterns are frequent itemsets; hence the collection of data patterns can be described by a simplicial complex. So at the end of the semester, we will compute their homology and analyze their implications. For example, its zero dimensional homology give us a very precise description of data clustering.

4. Grades

Projects, Term Paper & Class Presentations	60%
Exam, including final exam, Quiz &	40%
Total	100%

6. Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc

7. University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See [University Policy S90-5](http://www.sjsu.edu/senate/docs/S90-5.pdf) at <http://www.sjsu.edu/senate/docs/S90-5.pdf>. More detailed information on a variety of related topics is available in the [SJSU catalog](http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html), at <http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html>. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at http://www.sjsu.edu/provost/services/academic_calendars/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

Consent for Recording of Class and Public Sharing of Instructor Material

[University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

- “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
 - It is suggested that the greensheet include the instructor's process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
 - In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.
- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](http://www.sjsu.edu/aec) (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.