

San José State University
Fall Semester 2017
CS 157A, Introduction to Database Management Systems, Section 6

Course and Contact Information

Instructor:	Charles Bocage
Office Location:	MacQuarrie Hall, Room 229
Email:	Charles.Bocage@sjsu.edu
Office Hours:	Mo 6:15PM – 7:15PM (also by reservation)
Class Days/Time:	MoWe 7:30PM - 8:45PM
Classroom:	MacQuarrie Hall, Room 223
Prerequisites:	CS 146 (Data Structures and Algorithms) with a grade of C- or better, or instructor's consent. The Department of Computer Science strictly enforces prerequisites. The instructor may drop any student who does not show up for the first two class meetings without providing a valid excuse ahead of time.

Course Description

Introduction to Database Management Systems

Current, classical database systems. Entity-relationship and enhanced entity models. Relational model, algebra, calculus. Current, emerging SQL standard. Embedded, Dynamic SQL. Application perspective on transactions and security. Interactive and programmatic interfaces to database systems. Application programming project using commercial database system. Prerequisite: CS 146 (with a grade of "C-" or better); Computer Science, Applied and Computational Math, or Software Engineering majors only; or instructor consent.

Course Learning Outcomes (CLO)

Upon successful course completion, students would achieve the following:

- Know the algorithms for testing if a decomposition is in a given specific Normal Form (NF). Given a set of Functional Dependencies (FD), Know the algorithms to do a table decomposition into BCNF, 3NF and 4NF.
- Write SQL commands to create database, create table, Insert/Update/Delete/Query rows in a database system.
- Ability to load data into the database.
- Being able to write relational algebra queries and predict what the query will return from a given database instance.
- Write simple transaction using PHP or similar application programming interface (API).

Required Texts/Readings

- Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer D. Widom, “**Database Systems: The Complete Book**,” Prentice-Hall, 2nd Edition, 2009, ISBN-13: 978-0-13-606701-8 [Mandatory].

Recommended texts for self-study

- C. Date, “**An Introduction to database Systems**,” Addison Wesley, 8th Edition, 2003, ISBN-13: 978-0-32-119784-9 [Optional].
- Ramez Elmasri and Shamkant B. Navathe, “**Fundamentals of Database Systems**,” Addison Wesley, 5th Edition, 2006, ISBN-13: 978-0-32-136957-4 [Optional].

Course Requirements and Assignments

All the assignments and related documents must be submitted to Canvas by 11:59 PM PST on the due date. Late work is not accepted, and there is no extra credit or makeup work.

Homework and Project descriptions are available on Canvas:

- Homework-1: [Assignment is on Aug 30, 2017, and is due back on Sept 13, 2017.](#)
- Homework-2: [Assignment is on Sep 20, 2017, and is due back on Oct 4, 2017.](#)
- Homework-3: [Assignment is on Oct 11, 2017, and is due back on Oct 25, 2017.](#)
- Homework-4: [Assignment is on Nov 1, 2017, and is due back on Nov 29, 2017.](#)

Project: [Assignment is on Nov 13, 2017, and is due back on Dec 11, 2017.](#)

Exams or Evaluation

The midterm and final examinations will be closed book and no notes. There will be no laptops, or any personal digital devices allowed. There will be no make-up exams. If a student misses an exam without a legitimate excuse, a grade of zero will be recorded. If a student missed an exam with a legitimate excuse then the grade for that exam will be prorated. More details can be found in [University Policy S06-4](#) (<http://www.sjsu.edu/senate/docs/S06-4.pdf>) which states that “*There shall be an appropriate final examination or evaluation at the scheduled time in every course, unless specifically exempted by the college dean who has curricular responsibility for the course.*”

Grading Information

Your individual class grade will be weighted as follows:

- Assignments 30% 300 points
- Project 20% 200 points
- Midterm 25% 250 points
- Final exam 25% 250 points

Each assignment, project, quiz, lab, and exam will be scored (given points) but not assigned a letter grade. The mean, median and mode scores will be announced after each exam.

Determination of Grades

At least	Letter Grade
100%	A+
93%	A
90%	A-
87%	B+

83%	B
80%	B-
77%	C+
72%	C
70%	C-
67%	D+
62%	D
60%	D-
<60%	F

Classroom Protocol

Attendance is recommended, but it is not mandatory, except for exam dates. Cell phone use is prohibited. Punctuality is appreciated.

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](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

CS 157A Introduction to Database Management Systems, Section 6, Fall 2017 Course Schedule

Any changes in the schedule will be sent to registered students through SJSU email 1 week earlier.

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	Aug 23 rd	Lecture: Introduction to Data Model (Ch. 1 + Ch. 2)
1	Aug 28 th	Lecture: Introduction to Data Model (Ch. 1 + Ch. 2)
2	Aug 30 th	Lecture: Relational Algebra (Ch. 2) + HW-1 Preview
2	Sept 4 th	Labor Day - No Class
3	Sept 6 th	Lecture: Relational Algebra (Ch. 2)
3	Sept 11 th	Lecture: Relational Database Design Overview (Ch. 3)
4	Sept 13 th	Lecture: Physical RDBMS Design: Schema design and normalization (Ch. 3)
4	Sept 18 th	Lecture: Physical RDBMS Design: Schema design and normalization (Ch. 3)
5	Sept 20 th	Lecture: Physical RDBMS Design: Schema design and normalization (Ch. 3) + HW-2 Preview
5	Sept 25 th	Lecture: Logical RDBMS Model: E-R Model (Ch. 4)
6	Sept 27 th	Lecture: Logical RDBMS Model: E-R Model (Ch. 4)
6	Oct 2 nd	Lecture: Logical RDBMS Model: E-R Model (Ch. 4)
7	Oct 4 th	Lecture: SQL Overview and SELECT (Ch. 6)

Week	Date	Topics, Readings, Assignments, Deadlines
7	Oct 9 th	Lecture: SQL Overview and SELECT (Ch. 6) + Midterm Preview
8	Oct 11 th	Lecture: SQL JOIN, Aggregate, Grouping, Having and DML (Ch. 6) + HW-3 Preview
8	Oct 16 th	Midterm (Closed book)
9	Oct 18 th	Lecture: SQL JOIN, Aggregate, Grouping, Having and DML (Ch. 6) + SQL Group-by, Sub-query, Security (Ch. 7)
9	Oct 23 rd	Lecture: SQL Group-by, Sub-query, Security (Ch. 7)
10	Oct 25 th	Lecture: Transactions in SQL (Ch. 6.6), Constraints and Triggers (Ch. 7), Views and Indexes (Ch. 8)
10	Oct 30 th	Lecture: Transactions in SQL (Ch. 6.6), Constraints and Triggers (Ch. 7), Views and Indexes (Ch. 8)
11	Nov 1 st	Lecture: Transactions in SQL (Ch. 6.6), Constraints and Triggers (Ch. 7), Views and Indexes (Ch. 8) + HW-4 Preview
11	Nov 6 th	Lecture: XAMPP
12	Nov 8 th	Lecture: XAMPP
12	Nov 13 th	Lecture: Connecting to a Database using PHP + Project Preview
13	Nov 15 th	Lecture: SQL Persistent Stored Module (PSM) – Stored Procedure (Ch. 9)
13	Nov 20 th	Lecture: SQL Persistent Stored Module (PSM) – Stored Procedure (Ch. 9)
14	Nov 22 nd	Non-Instructional Day – No Class
14	Nov 27 th	Lecture: Embedded SQL, Dynamic SQL and CLI (Ch. 9)
15	Nov 29 th	Project Working Session
15	Dec 4 th	Project Presentations
16	Dec 6 th	Project Presentations
16	Dec 11 th	Final Review
Final Exam	Dec 13 th	Final (Closed book) – MacQuarrie Hall, Room 223, Time: 7:45pm – 10:00pm