Database Management Systems

CS 301-001 | Fall 2020 | 3 Credit Hours
Lecture
Dr. Susan Vrbsky

Contact Information

UA Campus Directory:

- [Dr. Susan Vrbsky](#)

Prerequisites

UA Course Catalog Prerequisites:
CS 200 and CS 201

Course Description

Course Description and Credit Hours
Constituent parts of database management (design, creation, and manipulation of databases), including the conceptual and relational data models, SQL, normalization and security. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

Required Texts

Required Texts from UA Supply Store:

- ELMASRI / FUNDAMENTALS OF DATABASE SYSTEMS **(Choose One)**
- ELMASRI (RENTAL) / (RENTAL) FUNDAMENTALS OF DATABASE SYSTEMS **(RENTAL)**
- ELMASRI / (eBook) Fundamentals of Database Systems **(Choose One)**

Instructor

- Dr. Susan V. Vrbsky
- 3040 HM Comer
- phone: 348-1671

- email: vrbsky@cs.ua.edu
- http://www.cs.ua.edu/~vrbsky
- Office Hours –Zoom meetings as much as possible. In addition to these hours I am also available for appointments.

MWF	10:00 am -11:00 am

Student Learning Outcomes

- Students create conceptual diagrams of databases
- Students write SQL queries for relational databases
- Students compare SQL to relational algebra
- Students write NoSQL queries for non-relational databases
- Students compare SQL to NoSQL databases
- Students analyze performance improvements from indexes
- Students identify importance of database transactions

Outline of Topics

- Intro to Databases
- ER/EER Model
- Relational Model
- SQL
- Relational Algebra
- Database Design
- Functional Dependencies and Normalization
- NoSQL DBs
- Security
- Indexes/Performance
- Transactions

Exams and Assignments

- In-class exercises
- Programming and written assignments
- Exams
- Writing assignments. Students who do not earn a passing grade on all writing assignments will receive a failing grade for the course.
- Final project

All assignments this semester will be individual. There will be no group projects.

Grading Policy

- 30% 2 Exams (15% each)
- 20% Final Project
- 40-45% 6-8 Written and programming assignments
- 5-10% 2 Writing assignments. Students who do not earn a passing grade on the all writing assignments will receive a failing grade for the course.

Policy on Missed Exams and Coursework

- In the event that you miss any of the assignments or exams, please email the course instructor as soon as possible to determine the appropriate make-up action. You are strongly encouraged to make arrangements prior to any known absences. Non-valid excuses will result in a score of zero for the exam.

- Late assignments: Students will be assigned 2 individual slip days. Slip days are actual calendar days.   **NOTE:** Regardless of slip days, students will **not** be allowed to turn in late homework once graded assignments have been distributed to the rest of the class.

- All make-up actions must be completed and/or determined before the exams or assignments are graded and distributed to the class. No make-up actions will be taken after this time.

Attendance Policy

- Regular attendance is your responsibility. Since this is an Audio Visual class, attendance means joining the class remotely on the scheduled class day/time.

- Tests will cover the material discussed during class, read in the text, and included in assignments.

Notification of Changes

The instructor will make every effort to follow the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as the need arises. In such instances, the instructor will notify students in class and/or via email and will endeavor to provide reasonable time for students to adjust to any changes.

Statement on Academic Misconduct

Students are expected to be familiar with and adhere to the official Academic Misconduct Policy provided in the Online Catalog.

Writing Assignments

- It is imperative that students in the field produce quality work.   That is, work that is neat, readable, coherent, complete and understandable. Due to this imperative, writing proficiency within this discipline is required for a passing grade in this course. Written assignments require students to demonstrate higher-level critical thinking skills, and demonstrate the writing skills normally required of an upper division student in Engineering and Computer Science. Students who are not able to demonstrate this level of writing skill will not pass the course, regardless of their performance on other course requirements. This means:

    Students who do not Pass the all writing assignments will receive a failing grade for the course.

- Students will also be required to write two papers.
- The first paper assigned will be graded and returned by mid-term.
- The following represents the criteria that will be used to grade each individual writing assignment.
- This is based on the following rubric.

Objective	Needs improvement	Meets Expectations	Exceeds Expectations
Students will be able to demonstrate effective communication skills, define computing requirements, and compare/analyze computer techniques.			
Purpose § Focus	__ Objective not clearly stated, paper lacks central focus	__ Objective adequately stated paper has central focus	__ Objective very clearly stated, paper has strong central focus
§ Significance (shows an awareness of main ideas)	__ Lack of awareness of main ideas	__ Some awareness of main ideas	__ Strong awareness of main ideas
§ Topic	__Does not write on assigned topic	___Sticks to the topic most of the time.	___Shows a good understanding of the assignment.
Organization § Structure	__ No clear structure or pattern	__ Adequate structure or pattern __ Paper is clear for the	__ Clear structure or pattern __ Entire paper is very clear and very coherent

Criterion			
§ Coherence	__ Entire paper lacks clarity; paper lacks coherence	most part; and coherent overall	__ Excellent paragraph transitions
§ Paragraphing (transitions /one idea to next)	__ Lack of paragraph transitions	__ Adequate paragraph transitions	__ Knows audience and guides reader
§ Audience	___Loses reader	___Guides reader	__Good Introduction & Conclusion
§ Introduction and Conclusion	___No clear Intro &/or Conclusion	__ Introduction &/or Conclusion	

Evidence

Criterion			
§ Accuracy (statements)	__ Inaccurate statements	__ Most statements are accurate	__ Statements are very accurate
§ Support (opinions adequately supported)	__ Lack of support for statements/ opinions	__ Adequate support for statements/ opinions	__ Strong support for statements/ opinions
§ Documentation	__ Sources are inadequate	__ Most sources are identified and referenced appropriately in the body	__ All sources are identified and referenced appropriately in the body
§ Comparisons	___Missing comparison	__Comparisons presented but not justified	__ Comparisons presented and justified
§ Performance	___Doesn't discuss performance	___Not enough performance results/analysis presented	___Adequate performance results/analysis

Mechanics

Criterion			
§ Sentence structure (grammar, sentence structure, spelling, punctuation)	__ Many errors in grammar, spelling, and/or punctuation. Mechanics interfere with reader's understanding of the text	__ Few errors in grammar, spelling, and/or punctuation. Minimal distraction.	__ Excellent grammar, spelling, and punctuation. Clear mechanics.
§ Appearance (Paper, References)	__ Poor appearance of Paper, References	__ Acceptable appearance of Paper, References	__ Excellent appearance of Paper, References

Statement On Disability Accommodations

Contact the [Office of Disability Services (ODS)](#) as detailed in the Online Catalog.

Severe Weather Protocol

Please see the latest [Severe Weather Guidelines](#) in the Online Catalog.

Pregnant Student Accommodations

Title IX protects against discrimination related to pregnancy or parental status. If you are pregnant and will need accommodations for this class, please review the University's FAQs on the [UAct website](#).

Religious Observances

Under the Guidelines for Religious Holiday Observances, students should notify the instructor in writing or via email during the first two weeks of the semester of their intention to be absent from class for religious observance. The instructor will work to provide reasonable opportunity to complete academic responsibilities as long as that does not interfere with the academic integrity of the course. See full guidelines at [Religious Holiday Observances Guidelines](#).

UAct Statement

The University of Alabama is committed to an ethical, inclusive community defined by respect and civility. The UAct website ([www.ua.edu/uact](#)) provides extensive information on how to report or obtain assistance with a variety of issues, including issues related to dating violence, domestic violence, stalking, sexual assault, sexual violence or other Title IX violations, illegal discrimination, harassment, hate or bias incidents, child abuse or neglect, hazing, threat assessment, retaliation, and ethical violations or fraud.

Statement on COVID-19

All University faculty, staff, and students are expected to maintain a commitment to the health and safety of our campus community. Due to the current COVID-19 pandemic, specific health and safety standards are in place to minimize exposure and community spread on campus. In the interest of your health and safety and that of all UA students, faculty and staff, the University reserves the right to change the mode of instruction or schedule of instruction at any time, based upon prevailing public health and other guidance. While the method of delivery may change, educational instruction and opportunities will continue. As such, the University will not provide a

refund of tuition, in whole or in-part, based on any such changes. Detailed information on changes in format or schedule can be found at studentaccounts.ua.edu and financialaid.ua.edu.

All students must be familiar with and abide by the requirements outlined in the UA Return Plan | UA System Comprehensive Health and Safety Plan. Students must (1) wear a mask or face covering at all times while participating in face-to-face class; (2) adhere to social distancing standards; and (3) comply with all other health and safety restrictions. If a student refuses to comply with the requirements, the student will be asked to leave the class and reported for a conduct violation. Unless a student has an exemption from the requirement to wear a face covering, (more information can be found at ods.ua.edu/covid-19-disability/), the student will be reported to Student Life for further disciplinary action. More information on these requirements and UA Healthcheck system and screening can be found at healthinfo.ua.edu/returnplan. You are expected to visit the site and comply with all noted requirements related to in-person class attendance.