

**CMPS 420/520 ---- Database Management Systems
Spring 2020**

Credit: 3.0 hrs, Time: MW 2:00-3:20 pm

Room: Thurman Hall Room 204

Instructor:

Professor: Shuju Bai, Ph.D.
Office: Henry Thurman Hall Room E111
Phone: 225-771-3021
Office hours: MTWR: 12:30-2:00pm
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Catalog Description (CMPS420): (Credit, 3 Hours). Topics include basic file organization: data structures, schemas, and subschemas, data models, relational, hierarchical, and network models, database reliability, database integrity, database protection, review of commercial database systems, programming in a database environment, and database administrator's role.

Catalog Description (CMPS520): (Credit, 3 Hours). This course will discuss data modeling, SQL, database application development, indexing, query optimization transaction management and database design. Concepts of parallel databases, data warehousing and data mining will be also covered.

Prerequisite: CMPS201, CMPS300

Objectives:

Students will be able to demonstrate knowledge of:
Foundations of relational databases
Internals of relational databases
SQL
E-R data modeling
Relational Database Design
Object-based Databases
Introduction to XML
Storage and file structure
Query processing
Indexing and hashing
Introduction to advanced database technology
Database design and tuning
Database applications
ORACLE/SQLPLUS
Parallel and distributed databases
Database security

Textbook:

Required:
Database System Concepts, 6th Edition
ISBN: 978-0-07-352332-3
Abraham Silberschatz, Henry F. Korth and S. Sudarshan
McGraw Hill, Inc.

References:
Fundamentals of Database Systems, 3rd Edition, Ramez Elmasri and Shamkant B. Navathe, Addison-Wesley Publishing Company

Database Management Systems, Raghu Ramakrishnan and Johannes Gehrke McGraw Hill, Inc.

ORACLE Database 12: The Complete Reference

Topics:

- Foundations of relational databases
- Internals of relational databases
- SQL
- E-R data modeling
- Relational Database Design
- Object-based Databases
- Introduction to XML
- Storage and file structure
- Query processing
- Indexing and hashing
- Introduction to advanced database technology
- Database design and tuning
- Security and authorization
- ORACLE/SQLPLUS
- Parallel and distributed databases

Course requirements:

There will be assignments including home assignments, programming assignments, quizzes, midterm and the final. A term project will be assigned at an appropriate time. The total scores from homework assignments, tests and project will be prorated to the interval 0-100.

Students are expected to attend all lectures, attempt all assignments, and take all tests. Excessive absences will affect your final grade. Assigned tests can only be made up after documented medical excuses are presented. No late homework. No make-up quizzes.

CMPS420 and CMPS520 will have different assignments, project, midterm, and final. Graduate students will be expected to demonstrate more knowledge and skills in all aspects than undergraduate students.

All undergraduate students need to have a LiveText account.

Term Project (CMPS420):

Students will have a chance to incorporate all knowledge learnt about database management through a term project. The project will be team project in the size of 2 while individual projects are encouraged. Oracle is the official software which has been installed on our server and workstations. However, students can use MySQL or SQL Server if you have access to these packages. In the project, students need to demonstrate the ability of designing database, managing database, and retrieving information from the database. SQL coding is required. A full report is required. An oral presentation is required. Detailed description will be available later.

Term Project (CMPS520):

Students will design and implement a server-client architecture to provide database management services on the back end and a webpage interface on the front end. A full written report is required. An oral presentation is required. Detailed description and requirements will be passed to the students along with the course.

Course Work:

Approx. weight in grade

Attendance	5%
Term project and assignments	25%
Midterm (in class)	35%
Final	35%

Grading:

90%-100%	A
80%-89%	B
70%-79%	C
60%-69%	D
59% and less	F

ABET PEOs and SOs:

This course addresses ABET Program Educational Objectives 1, 2, and 3; Program ABET Outcomes 1, 2, 4, and 6.

Program Educational Objectives: The Educational Objectives of the Computer Science Program are to produce graduates who:

PEO1: Successfully enter the competitive job market or pursue advanced study.

PEO2: Be proficient in identifying, formulating, and solving a wide range of computing problems.

PEO3: Be capable of working collaboratively, communicating effectively with team members, constituents, and the public.

Program ABET Student Outcomes: Each graduate by the time of graduation will have ability to:

Outcome 1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

Outcome 2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

Outcome 4: Recognize professional responsibilities and make informed judgements in computing practice based on legal and ethical principles.

Outcome 6: Apply computer science theory and software development fundamentals to produce computing-based solutions.

LIVETEXT Subscription:

Southern University and A&M College-Baton Rouge has entered into partnership with LiveText, Inc. to provide online academic resources for student collaboration and learning outcomes assessment. Therefore, all students enrolled in this course are required to purchase a subscription from LiveText, Inc. through the Southern University Bookstore. LiveText, Inc. provides students with the electronic tools and services needed to serve them in their courses and in their career or academic pursuits beyond graduation.

LiveText is a dynamic tool that will enable you to:

- Create electronic portfolios for storing and displaying coursework for use anytime and anyplace.
- Share your resumés, professional portfolios and virtually any projects that can be photographed, video recorded, and uploaded to prospective employers and others who need or want to know about your accomplishments.
- Engage in discussion boards with other students, exchange feedback, and create study groups and other types of social networks.
- Complete assignments in key/required courses where LiveText has been embedded (without LiveText, you will not be able to complete these assignments).
- Create a complete record of your academic career that is malleable and easily accessible.
Engage in developing a results-driven culture of assessment at Southern University.
- Participate in a process that will allow for data-driven curricular improvements that foster improved student learning and performance.

MOODLE Access:

Southern University and A&M College at Baton Rouge will use Moodle extensively in this course. Moodle is a learning management system designed to help teachers and students communicate effectively online. The course syllabus, class materials (e.g., handouts, PowerPoint slides, journal articles, assignments, readings, etc.) will be placed on Moodle. The student should check Moodle DAILY for all assignments submitted via Moodle. If the student has problems with his

Moodle account, he/she should contact Ms. Chrisena Williams-Brown in the Division of Information Technology via email at chrisena_williams@subr.edu or via phone at (225) 771-5017.

Academic Dishonesty:

The University defines academic dishonesty as premeditated and un-premeditated fraudulent behavior. Premeditated fraud is defined as conscious, pre-planned, deliberate cheating with materials prepared in advance.

Unpremeditated fraud is defined as cheating without the benefit of materials prepared in advance. See the Southern University and A & M College Catalog for a more detailed definition of academic dishonesty. In addition, administrative regulations governing the conduct of students enrolled at the University are contained in the Code of Student Conduct. A copy of the Code of Student Conduct may be obtained from the Office for Student Affairs.

ADA Compliance:

Students with documented disabilities who believe that they may need accommodations in this class are encouraged to contact the Disability Services Coordinator in the Office of Disability Services, 234 A.C. Blanks Hall, [225-771-3950](tel:225-771-3950) (Voice/TTD), [225-771-5652](tel:225-771-5652) (Fax), as soon as possible to ensure that such accommodations are implemented in a timely fashion. Students who need accommodations must be registered with the Office of Disability Services. Students are responsible for informing the instructor of any instructional accommodations and/or special learning needs at the beginning of the semester. All discussions will remain confidential.