INSC 584 Database Management Systems

Fall 2021

Instructor       Peiling Wang
Class time       Tu/Th 12:40 -1:55 p.m.
Meeting at       Zoom (link in Canvas)
Office           443 Communications
Hours            See Canvas
eMail            peilingw@utk.edu

Course Description/Information

Defining data needs, data structures, the role of operating systems in data management, file organization, database management systems, logical data models, internal data models, database administration, and evaluation. Design and implementation of applications using database management systems

Value Proposition

Learning by doing a project that has real-world applications is critical for mastering database design and implementation.

Learning Outcomes/Objectives

- understand information needs in organizations and the database environment
- understand the database development process and technology
- master database terminology for effective communication
- be able to design data models using Entity-Relationship (ER) diagrams (conceptual design)
- be able to translate/map ER diagrams to relational models (logical design)
- be able to implement a prototype database application using a relational DBMS software package (physical database)
- be able to use Structured Query Language (SQL) to retrieve data (data access)
- understand issues pertinent to operational databases
Programmatic Outcomes/Department Goals

Course project can demonstrate SIS MS learning outcomes 6, 7, 8, or/and 9 (see the last page)

Learning Environment

The shift to 21st-century learning requires teachers to adopt a learner-centered approach to teaching. Built on the constructivist theory, I take into consideration of students’ diverse backgrounds and career goals, as well as the need for lifelong learning. This course tackles a challenging subject, database, which is loaded with difficult concepts and requires strong computer technological skills. It will not be a realistic expectation to master the subject in a 3-credit course. I expect that upon successful completion of the course, you will feel confident to pursue the subject further because of the solid foundation we build during the course regardless of your starting point. For the students with some database experiences, you are encouraged to move towards a higher level of competences.

As the instructor, I encourage you to set up your own learning objectives based on your career goals. I support and guide you to achieve your personalized learning outcomes. Critical success factors include critical thinking and perseverance. You will find the practical use of the knowledge and skills learned in this course even if you are not seeking a database management career! Congratulations to you for taking this course to learn a challenging subject.

Innovating Teaching with Flipped Classroom. I will adopt this approach in this course to place my students in the center of learning. The flipped classroom method has been successful when students are well prepared and actively participate in hands-on activities during class time. This approach is appropriate for the concepts and tasks such as drawing an ERD, testing SQL statements, analyzing different models for a well-defined design case. This approach should make online courses more effective by reducing one-way lecturing.

Course Management and Communications

Canvas is the courseware to access course materials, Announcements, Assignments, Schedules, Grades, and any related matters. If you send an email from Canvas, be sure to include your Vols email for me to reply to you directly.

Be Successful in this Course

- Be prepared for all classes such as reading before the class
- Be active in participating in discussions online and in Canvas
- Meet due dates on assignments
  Instructor should
- Be attentive to and supportive of individual student’s needs
- Create and facilitate meaningful learning activities
- Provide feedback to assignments promptly
Texts/Resources/Materials


Required Equipment

Microsoft ACCESS in addition to Word and PowerPoint (or a graphic tool). Web access to resources.

Course Requirements, Assignments, and Evaluations

1. Class Attendance Participation (10%)

Prepared attendance is important for this course, given the nature of the subject. Students are expected to have read the material before the class and contribute to the discussion and other activities.

If you must miss a class for whatever reason, you are still responsible for the material covered. The UTK School of Information Sciences (SIS) does not recommend that students attend online classes while driving or riding in motorized vehicles. Zoom for smartphones or tablets may not support certain functions. Classes are recorded, and you can replay to make up the missed classes. See the Texting While Driving Law (TCA 55-8-199).

Conferences with the instructor: you are strongly encouraged to meet with the instructor in person or online. Many students found such meetings helpful, especially during their projects and labs. You are required to hold at least one meeting with the instructor no later than the set due date: for campus students, meet face to face; for DE students, use interactive methods such as Skype or Zoom. Please contact me early in the semester to schedule the meeting. You should meet about your project before the first due date to get my feedback.

2. Course Journals (10%) – Start now

Becoming a reflective learner is very important for career success in IT! Write structured journal entries for important incidents during your learning: 1) your “Aha!” moments; 2) know-how you figured out that can be used later or shared with others; 3) a debugging episode—what was your strategy to tackle the problem; 4) a lesson learned from a mistake—if you would do the task again, what might you do? Throughout the semester, you will write about these significant learning experiences and reflect on your growth. Be succinct!

3. Exercises (25%)

The exercises aim to review concepts and reinforce understanding. The exercise questions are implemented using the “Practice Quiz” module so that you will receive the system feedback instantly. If you missed a question, you could analyze if you have not mastered the concept or if the question is vague. If you wish, you can redo the entire exercise (but be reminded that the system could not be set up to do only the missed questions). I recommend you to write a journal to reflect the question(s) you answer does not match the book-provided answer instead of doing the exercise again for the points. The
exercises are not graded. You are credited for completing each by the due date; late assignments will lose points unless a prior agreed arrangement is made on the new submission date.

- Exercise 1 – chapter 1
- Exercise 2 – chapter 2
- Exercise 3 – chapter 4
- Exercise 4 – chapter 6
- Exercise 5 – chapter 7

4. Labs (20%)
   Learning-by-doing! Labs are important hands-on practices to develop IT skills. These labs are designed for practicing basic DBMS skills: implementing data structure and using SQL. However, much of the advanced database skills can only be built by exploring the software to develop adequate mental models and through trouble-shooting. MS Access has a good visual interface and provides error messages. It is suitable for learning using a trial and error approach. It also can support real-world projects of individual researchers or small organizations.

- Lab 1 – Create Data Structure (ACCESS)
- Lab 2 – Basic Queries (One Table)
- Lab 3 – Advanced Queries (Multiple Tables)

5. Project (35%)
   Students must complete a hands-on project either as an individual project or as teamwork. In real-world settings, a database is mostly designed, developed, and maintained by a team. A good team will make learning-about and learning-by-doing much easier and fun with the support of teammates. However, the online learning mode makes the collaboration of database projects difficult. I will accept individual projects.

   Database design and prototyping. Select a scenario or a real-world environment to do needs analysis, conceptual design, and a prototype. I will help you along the process. [The focus of this project is back-end: data structure and integrity, and queries to retrieve data; a simple interface as a menu can be easily set up in ACCESS]

   Each project is evaluated based on the criteria for the type. Each project team will receive the same points unless issues arise.

Course Feedback

To maximize learning outcomes, students are encouraged to provide criticisms, input, and suggestions to my teaching. You may do so by meeting with me, emailing me, or just dropping an anonymous note.
Evaluation and Grading

The University of Tennessee grading system for graduate-level courses is as follows.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>superior performance</td>
</tr>
<tr>
<td>A-</td>
<td>intermediate grade performance</td>
</tr>
<tr>
<td>B+</td>
<td>very good performance</td>
</tr>
<tr>
<td>B</td>
<td>good performance</td>
</tr>
<tr>
<td>B-</td>
<td>intermediate grade performance</td>
</tr>
<tr>
<td>C+</td>
<td>less than satisfactory</td>
</tr>
<tr>
<td>C</td>
<td>well below the standard expected of graduate students</td>
</tr>
<tr>
<td>D or F</td>
<td>cannot be used to satisfy degree requirements</td>
</tr>
</tbody>
</table>

Schedule

see Canvas

Policies and Additional Information  Inclement Weather

The chancellor (or appointed representative) may officially close or suspend selected activities of the university because of extreme weather conditions. When a decision to close is made, information is distributed to the campus community, shared with local media, and posted on the front page at http://utk.edu, or call 865 9741000. SIS will cancel classes when UT is closed. Please check the SIS student listserv (UTKSIS-L@LISTSERV.UTK.EDU) for messages about closing.

Academic Accommodations

Any student who feels s/he may need an accommodation based on the impact of a disability should contact Student Disability Services

Civility

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability, and courteousness. Civility enhances academic freedom and integrity and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other’s well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: http://civility.utk.edu/.

CCI Diversity Statement

The College of Communication and Information recognizes that a college diverse in its people, curricula, scholarship, research, and creative activities expands opportunities for intellectual
inquiry and engagement, helps students develop critical thinking skills, and prepares students for social and civic responsibilities. All members of the College benefit from diversity and the quality of learning, research, scholarship, and creative activities is enhanced by a climate of inclusion, understanding, and appreciation of differences and the full range of human experience. As a result, the College is committed to diversity and equal opportunity, and it recognizes that it must represent the diversity inherent in American society. The College is acutely aware that diversity and fairness are foundations that unite the College’s faculty, staff, students, and the larger communication and information community.

**Instructor Status as a Title IX Mandatory Reporter**

University of Tennessee faculty are committed to supporting our students and upholding gender equity laws as outlined by Title IX. Please be aware that if you choose to confide in a faculty member regarding an issue of sexual misconduct, dating violence, or stalking, we are obligated to inform the University’s Title IX Coordinator, who can assist you in connecting with all possible resources both on- and off-campus. If you would like to speak with someone confidentially, the Student Counseling Center (865-974-2196) and the Student Health Center (865-974-3135) are both confidential resources. For additional resources and information, visit [titleix.utk.edu](http://titleix.utk.edu).

**Academic Integrity**

Students should be familiar with the Student Code of Conduct: studentconduct.utk.edu and abide by the Honor Statement:


**Plagiarism**

Plagiarism in any of its several forms is intolerable, and attention to matters of documentation in all written work is expected and required. Inadvertence, alleged lack of understanding, or avowed ignorance of the various types of plagiarism are not acceptable excuses. Specific examples of plagiarism include:

- Copying without proper documentation (quotation marks and a citation) written or spoken words, phrases, or sentences from any source;
- Summarizing without proper documentation (usually a citation) ideas from another source (unless such information is recognized as common knowledge);
- Borrowing facts, statistics, graphs, pictorial representations, or phrases without acknowledging the source (unless such information is recognized as common knowledge);
- Collaborating on a graded assignment without the instructor’s approval;
• Submitting work, either in whole or in part, created by a professional service and used without attribution (e.g., paper, speech, bibliography, or photograph).

Students who may be unsure of the nature of plagiarism should consult the instructor or a guide for writing research reports. (Additional resources are available at http://www.lib.utk.edu/instruction/plagiarism.)

Infractions of academic integrity are penalized according to the severity of the infraction but may include a course grade of "F."

**SIS MSIS Program Outcomes (current version)**

It is our vision to provide a quality educational program, and for students to have the very best educational experience possible. By the end of their time in the MSIS program, each student should be able to:

1. Describe and discuss the processes of creation, organization, distribution, storage, access, retrieval, management, use, and preservation of information.
2. Describe and discuss the nature of leadership and management in the information professions and the importance of participation in the global information society.
3. Apply the general principles, values, and ethical standards of providing information services in a variety of settings and for diverse populations.
4. Comply with the changing responsibilities of the information professional in a culturally diverse and networked global society.
5. Identify critical professional issues in a variety of organizational, cultural, societal, disciplinary, transdisciplinary, and historical contexts.
6. Analyze and apply standards or policies related to the processes of creation, organization, distribution, storage, access, retrieval, management, use or preservation of information.
7. Explain the changing nature of information, information needs, and information behavior.
8. Assess and implement information technologies, systems, sources and services that serve users effectively and efficiently.
9. Analyze research and apply it to information practice.