Course Syllabus

SIE 557 Database System Applications

Course Description

Covers relational database systems and using them in programming a application with a graphical user interface with Python/Tkinter. Topics include: Relational database systems. The relational data model. The SQL language. SQL queries. Installing and using database systems. Using graphical user interfaces for database management. Programming database systems using Python. Programming a Python/Tkinter-based database application.

Cr. 3. Prerequisite: SIE 507 or beginner's experience in Python programming

Course texts

- [Head First SQL](), O'Reilly Media (2007, 1st Edition)

Software:

- MySQL Workbench (download latest version from Oracle website)
- [MAMP]() (MySQL, Apache and PHP).
- Pycharm, and Python.

Course Goals and Objectives

- Introduce students to concepts of modern database systems
- Develop an understanding of using, designing, and programming database systems
- Expose students to practical work with database systems through a series of labs

Faculty Information

Dr. Silvia Nittel
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Office Hours
Office hours for this course will be announced at the beginning of the semester. Alternatively, contact me by email to arrange a time to meet.

Grading, Class Policies and Course Expectations

Grades in this course will be based on the quality and completion of the four course projects (80%) and 20% percent of the course grade is dependent on attendance and participation in class. As a graduate level course, you are expected to exhibit high quality work that demonstrates sound

understanding of the concepts and their use. Earning an "A" represents oral and written work that is of exceptionally high quality and demonstrates superb understanding of the course material. A "B" grade represents oral and written work that is of good quality and demonstrates a sound understanding of course material. A "C" grade represents a minimally adequate completion of assignments and participation demonstrating a limited understanding of course material. A "C+" grade or lower is typically unacceptable at the graduate level.

ACADEMIC INTEGRITY: Academic dishonesty includes cheating, plagiarism and all forms of misrepresentation in academic work, and is unacceptable at The University of Maine. As indicated in the University of Maine's on-line "Student Handbook," plagiarism (the submission of another's work without appropriate attribution) and cheating are violations of The University of Maine Student Conduct Code. An instructor who has probable cause or reason to believe a student has cheated may act upon such evidence, and should report the case to the supervising faculty member or the Department Chair for appropriate action.

DISABILITIES (ADA) STATEMENT: Students with disabilities who may need services or accommodations to fully participate in this class should contact Ann Smith, Director of Disability Services in 121 East Annex, (voice) 581-2319, (TTY) 581-2325 as early as possible in the semester.

CLASS DISRUPTION: In the event of an extended disruption of normal class activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Distance Classes

The class is available on Zoom. Link is published on Courses.maine.edu.

Module 1: Introduction to database systems

- Introduction — what are database systems? (1)
- Installing a database system (1)
- Installing a graphical user interface for database maintenance (1)
- Introduction to the relational data model and SQL (1)
- Creating tables and managing data (1)
- Querying data (2)
- Database design and relational normal forms (2)
- Creating views (1)
- Securing databases (1)

Module 2: Programming a database application with a graphical user interface using Python

- Overview (1)

- Building a Python program that connects to a database, inserts, queries and updates data in the database (2)
- Introduction to Tkinter (1)
- Building a database application with Python that stores its data in MySQL with a graphical user front end, allowing to query for database data and updating it. (10)

Module 3: Database Final Project (in parallel with Module 2)

- Project discussion (1)
- Database Design & Programming (1)
- Project presentation (1)