

CSC2810 Database Design and Management

Dr. Mark Mahoney

Spring 2022

TR 12:30 PM– 2:10 PM

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Office Hours:

MW 12:30 PM – 1:15 PM

TR 2:15 PM – 4:00 PM

Prerequisites: CSC1820

Required Material:

[Database Design 2nd Edition](#)– Watt & Eng (provided as a free eBook in the Materials folder)

[Database Design and SQL for Beginners](#)– Mahoney

[Worked SQL Examples](#)– Mahoney

[Programming with SQLite](#)– Mahoney

Grading Criteria:

Assignments 55%

Exams 45%

Course Description: This class serves as an introduction to databases and database management. In the course of this semester we will learn to analyze, design, create, and query databases and build applications that use databases. The goal of this course is introduce the theoretical underpinnings of relational databases and the tools used to build and deploy them. This is not a programming course where we will be going over code every session, but it is a technical course and everyone will be expected to write significant applications during the course of the semester. In addition, you will be expected to learn some new tools and techniques related to the construction and deployment of data on the web.

Almost every business stores information in computers that invariably need support from specialists. This includes analysts, designers, developers and administrators. There is an incredible demand for professionals in both database administration and software development. After taking this course one should be able to discuss most current database trends in the jargon of industry experts. The field of computer science is broad, and the type of jobs that are advertised are just as broad. One can find a job as an administrator that never writes any code, or one can find a job developing software for an embedded communication device. No matter what position you end up taking, you will benefit from the information presented in this course.

Objectives:

- Develop an understanding of relational databases (ER modeling, normalization, indexing, transactions, etc.)
- Learn how to analyze and design databases using current modeling techniques
- Learn how to use the SQL query language
- Learn to use at least one popular DBMS
- Learn to build applications that use a backend database to provide dynamic content
- Develop an understanding of non-relational databases (so called NoSQL databases)
- Develop an understanding of Object Relational Mappers (ORMs)

Class/General: We have a lot of information to cover. It is vitally important that every student read every assigned chapter at least once before they get to class. This is a difficult subject that requires reading and practice. If you do not do both, you will not pass this course. If you intend to work in an industry that uses stored data (that is, all industries), this will be an important course. I expect the student to treat it as such and come fully prepared to participate in class discussions, ask questions and see me outside of class for help if necessary.

Feel free to ask for help after class. Also, feel free to see me in my office, again I will stay as long as needed. Students can call me or email me with any questions. There are no dumb questions!

Computer Lab: I encourage you to bring a laptop computer into class if you have one. However, do not surf the web. We will be doing lab work throughout the semester.

Class Web Site: I have created a website for this class to better distribute information. The website will provide each student with access to his or her grades, class announcements and homework assignments.

Programming Assignments: All assignments must be handed in on the due date (I may ask for assignments at the beginning of class or just before midnight on the due date). I do not accept late work. Be sure to hand in whatever work you have completed before the due date. Partial credit is better than no credit.

Read the requirements for each assignment carefully. Ask questions on any portion that is not clear.

Students are encouraged to help each other while learning the material. The exchange of ideas enhances the learning process. However, the final product must be your own. Plagiarism of assignments and cheating on exams are not permitted. Any student caught doing so will automatically receive a failing grade. You can find the academic honesty guidelines here (<https://www.carthage.edu/community-code/academic-concerns/academic-honesty-guidelines/>) and the consequences for violating them here (<https://www.carthage.edu/community-code/academic-concerns/penalties/>).

Carthage College strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers due to your disability (including mental health, learning disorders and chronic medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, you also need to register with Diane Schowalter in Learning Accessibility Services (dschowalter1@carthage.edu).