

9-2013

## CSCI 240.01: Databases with MS SQL Server

Rhonda Tabish

*University of Montana - Missoula College*, [rhonda.tabish@umontana.edu](mailto:rhonda.tabish@umontana.edu)

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# MISSOULA COLLEGE

UNIVERSITY OF MONTANA

## Department of Applied Computing and Electronics

Fall 2013

### **CSCI 240 Databases with MS SQL Server**

Prerequisite: CSCI 172 or consent of instructor

Credits 3

M, W 2 – 3, R 1 – 3

### **Rhonda Tabish**

rhonda.tabish@umontana.edu

243-7808; Office Location: AD14D

Office Hours: M, W 11 – 12

T, R 9:30 – 10

### **COURSE DESCRIPTION:**

Relational database design including: requirements analysis, data structure, entity relationships, normalization, relational algebra and integrity. Physical implementation focusing on data storage, retrieval and modification; concurrency; optimization; security; SQL; and XML.

### **STUDENT PERFORMANCE OBJECTIVES:**

1. Students will develop a logical data model.
2. Students will implement a physical relational database.
3. Students will retrieve and modify data in a relational database.
4. Students will program business logic in a relational database using SQL..
5. Students will fine tune and optimize data access in a relational database.
6. Students will design a database security plan.

### **Required Materials:**

Database Concepts; David Kroenke; Pearson Prentice Hall; 6th Edition; ISBN 978-0-13-2744292-4; available through the UM Bookstore <http://www.montanabookstore.com>.

Microsoft SQL Server 2012 Express Advanced Edition, free download from Microsoft.

### **OPTIONAL SUPPLIES:**

USB Electronic Storage Drive (Jump-drive) to transport and backup files.

### **ATTENDANCE AND MAKEUP POLICY:**

Students are expected to attend and participate in class. Because of the amount of material covered, it is important that students consistently attend class. Material covered in class will be helpful in completing course assignments. If class is missed it is the student's responsibility to determine what makeup is required. **Late assignments are not accepted.** Emergency situations will be handled privately on a case by case basis.

### **ASSESSMENT PROCEDURES:**

Projects	50%
Quizzes	25%
Final Project	25%

### **GRADING SCALE:**

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D

**FINAL PROJECT/EXAM: Tuesday, December 10, 1:10 – 3:10**

**Be sure to use UMConnect for email communication.**

### **INCOMPLETE GRADE POLICY:**

It is assumed that students have the responsibility for completing the requirements of the courses in which they are enrolled within the time framework of the semester. Incompletes may be given when, in the opinion of the instructor, there is a reasonable probability that students can complete the course without retaking it.

The incomplete is not an option to be exercised at the discretion of students. In all cases it is given at the discretion of the instructor within the following guidelines:

1. A mark of incomplete may be assigned students when:
  1. They have been in attendance and doing passing work up to three weeks before the end of the semester, and
  2. For reasons beyond their control and which are acceptable to the instructor, they have been unable to complete the requirements of the course on time. Negligence and indifference are not acceptable reasons.
2. An incomplete which is not made up within one calendar year automatically will revert to the alternate grade which was assigned by the instructor at the time the incomplete was submitted.
3. **An incomplete remains on the permanent record and is accompanied by the final grade, for example, IA, IB, IC, etc.**

**ACADEMIC INTEGRITY:**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The code is available for review online at <http://www.umt.edu/SA/VPSA/index.cfm/page/1321>.

Using the Web to research materials and concepts is an integral part of learning in the twenty-first century. Studying with other students is a productive method of learning. A certain amount of collaborating on concepts with other students and using resources found on the Internet in an assignment is recommended. Copy and paste is not acceptable. It is expected that each student will input his/her assignment into the computer, and each student must be able to explain any assignment turned in. Collaboration on exams is strictly forbidden.

**DISABILITY ACCOMODATIONS:**

Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely way. Please contact me after class or in my office. Please be prepared to provide a letter from your DSS Coordinator. For more information, visit the Disability Services website at <http://www.umt.edu/dss> or call 406.243.2243 (voice/text).

**CHANGES TO SYLLABI:**

Instructor reserves the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class.

## **CSCI 240 Databases with MS SQL Server**

### **Course Outline:**

- I. Introduction
  - a. Data Lists
  - b. N-Tier Computing Model
  - c. Relational Database Management Systems
  
- II. Beginning SQL: Data Manipulation Language and Data Definition Language
  - a. Data Selection: Single Table SELECT
  - b. Aggregate Functions
  - c. ADO.NET
  - d. Data Manipulation: INSERT, DELETE, UPDATE
  - e. Data Definition: CREATE, DROP, ALTER
  
- III. Database Design
  - a. The Relational Model
  - b. ER Diagrams and Normalization
  - c. Data Integrity: Data Typing
  - d. Data Integrity: Constraints
  
- IV. Advanced SQL: Programming Constructs
  - a. Joins and Sub-queries
  - b. Procedures, Triggers, and Cursors
  - c. Views
  - d. More ADO.NET
  - e. Data Import/Export and XML
  
- V. Database Administration
  - a. Concurrency
  - b. Security
  - c. Indexing
  - d. Optimization
  - e. N-Tier Model