

CS 330: Database Systems
Winter, 2014
Syllabus

- **Logistics.**

- Lectures: Monday, Tuesday, Thursday, Friday; 8:00 in CF 314
- Instructor: James Johnson
- Office hours: CF 467, Monday, Tuesday, Thursday, Friday, 9:30 - 10:30
- Instructor contact.
 - * e-mail: James.Johnson@wwu.edu
 - * website: <http://faculty.cs.wwu.edu/johnson>
- Text: Database Systems Concepts (Sixth Edition)
by Silberschatz, Korth, and Sudarshan (McGraw-Hill, 2011)
- Evaluation items:
 - * Three programming assignments (30 points each)
 - * Two exams, including final (45 points each)
 - * Quizzes (5 points each; expect about 4 of them), always on Fridays, always announced by the preceding Thursday or earlier
- Tentative Grade scale: 90+ = A, 75+ = B, 60+ = C, 50+ = D, 50- = F. Your fraction of the 200 points outlined above, assuming 4 quizzes, will be linearly converted to a total in the 0–100 range, to which the above scale applies. Excepting unusual circumstances, there will be no +/- grade annotations.

- **Course objectives.** On completion of this course, students will have demonstrated:

- a basic understanding of the relational database model and its SQL access language;
- a basic understanding of relational database design, primarily through entity-relationship diagrams and their translations to relational schemas;
- an introductory appreciation of functional dependency constraints and normal forms;
- the ability to interface with relational databases through a procedural programming language;

- **Policies:**

- **Notices.** Graded work may be due during the last week of lectures. Further notices will appear on the course web site and will include such items as exam dates and programming assignment due dates.
- **Attendance.** Although I will record lecture attendance, this information will not influence your grade. I am simply curious about the correlation between lecture attendance and performance. If you arrive late for lecture, please check with me after class to ensure that I noticed your entry.
- **Late work.** In general, late programming assignments will be accepted for a maximum 60% credit **through the first week after the due date.** Later submissions will receive no credit. Assignments due during the last week of class will not be eligible for the grace period extension.
- **Program submission.** The course web page provides a download called “Computer Issues.” Among other matters, this document described how to save an Eclipse project as a .zip file suitable for importing into another workspace. Using these directions, export your completed Eclipse project to a .zip file with an appropriate name identifying the assignment. Email that file to the instructor before the deadline.

- **Course overview.** Roughly two-thirds of the lectures will be devoted to database concepts; the remaining third will address programming issues. The conceptual lectures will cover the textbook chapters noted below. The 20-minute quizzes and the two exams will deal only with this conceptual material; they will not contain programming questions. Translation of database queries into SQL or other query languages is not considered a programming activity. In particular, we are not concerned with coding details, such as exact placement of semicolons and proper scoping of loops, and we are very much interested in the underlying logical structure

of the query. Consequently, such translations are conceptual, and exercises of this nature may appear on the exams or quizzes.

We will cover the following textbook chapters, and the course web page will present a schedule of reading that is expected as of certain dates.

- Chapter 1: Introduction.
- Chapter 2: Introduction to the Relational Model.
- Chapter 3: Introduction to SQL.
- Chapter 4: Intermediate SQL, Sections 4.1 – 4.2.
- Chapter 7: Database Design and the Entity-Relationship Model.
- Chapter 8: Relational Database Design, Sections 8.1 – 8.5

Certain of the lectures, and all of the programming assignments, will involve the Java language. Students are expected to be reasonably proficient programmers in some procedural language, although not necessarily Java. The Java subset needed to engage relational database servers is not large. Static procedures and library packages, either native Java or instructor-provided, suffice. Lectures will show how to translate Ada code, specifically problems from CS 145, into simple Java. Prior to each subsequent programming assignment, a lecture sequence will provide examples that show how to use library services to move data back and forth from program to database. Data manipulation within the program will use Ada concepts with which all are familiar, although the code must now use Java syntax. The three programming assignments have the following goals.

- Program 1: An introductory exercise to become familiar with elementary Java syntax and with the data space (stock market price/volume data) that subsequent programs will probe for patterns.
- Program 2: A data mining exercise that involves importing database information into a Java program. After writing this program, the student will be familiar with the mechanisms for establishing connections with remote databases and querying them for needed information. The latter activity embeds SQL syntax in the Java code.
- Program 3: A more ambitious data mining exercise that requires the program to establish a new database for recording its results.

- **Important dates.**

- Midterm exam: Monday, February 10, 2014
- Final exam: Friday, March 21, 8:00 – 10:00, CF 314.