



CS 474 – Database Design and Implementation  
Spring 2011  
M/W/F – 9:05 – 9:55am  
Room ISAT/CS 243 or ISAT/CS 250

### Instructor Information

Ms. Nancy Harris  
ISAT/CS 217  
540-568-8771  
[harrisnl@jmu.edu](mailto:harrisnl@jmu.edu)  
AIM – harrisnl55; G-chat – csharrisnl  
If I am online, please feel free to  
contact me.

### Office Hours

M 1:30-2:30  
T 3-4 and 5-6  
W 2:30-3:30  
Th 3-4  
Other hours by appointment

### General Description:

Students study database design and management with emphasis placed on data definition languages, data manipulation languages, query languages and on management of the database environment.

**Prerequisites:** CS 345 or CS 274, or ISAT 340.

### Goals and Objectives

This course provides an introduction to the theory and practice of modern relational database systems. By the end of the course, you should be able to demonstrate your understanding of:

- the goals, functions, models, components, applications and social impact of database systems,
  - how to evaluate suitable searching strategies according to the type of query,
  - how to evaluate the advantages and disadvantages of alternate solutions to conceptual modeling problems,
  - the concepts of the relational data model and the concept of a non-procedural query language,
  - the mapping between a conceptual model and a relational schema,
  - the anomalies that can occur within a database and how to correct them through a normalization process,
  - the computational aspects of a relational model,
  - the concepts of the client-server architecture and how a database management system can be used to create a small client-server application,
  - the use of SQL to query, update, and manage relational databases.
- In addition, you will install and gain a working understanding of a commercial-grade database system and the means to create a functioning application.

### Textbook and Required Material

**Required:** Thomas Connolly and Carolyn Begg, *Database Systems, A Practical Approach to Design, Implementation, and Management (5th edition)* (Addison-Wesley, 2010).

**Optional:** Ramon Mata-Toledo and Pauline Cushman, *Fundamentals of SQL Programming - Shaum's Outline Series* (New York: McGraw Hill, 2000).

For both of these books, if you want to share a copy with a colleague in class, that would be fine. We will, however, be making extensive use of the required text for background reading and homework exercises. You may obtain the textbooks at any of a number of online sites or the campus bookstore.

### Class Format:

We will meet in the classroom most days. During those days we will have a combination of lecture for some material and group work for other material or a combination. During a few class periods, we will meet in the lab. The group work will consist of POGIL or POGIL like activities. <http://www.pogil.org/> - for more information.

See link for the schedule. The schedule is subject to change and will be filled in more specifically as we work through the topics.

### Communication:

We will use Blackboard and the web as a means of communicating. Announcements for class will be made on the Blackboard announcements page or the course schedule page if Blackboard is unavailable. Any other announcement that you receive through other means (such as e-mail) is suspect unless confirmed by Blackboard or the course web page. If I send an e-mail to the class as a

whole, I will also put the text into a Blackboard or web announcement. If school is cancelled due to snow days, be sure to check the announcements for any due date changes or homework assignments.

Also, use my office hours if you are having difficulty, or just need clarification on an assignment or with something that you are working on. Office hours belong to the students and is a good way for us to communicate individually.

### Grading

We are going to grade on a contract grading system. For each category of work, you will choose what percentage of your grade will be based on that category. See Assignments tab for the contract form. You must choose a percentage within the range (inclusive).

Exam 1 – Feb 18	5 - 20%
Exam 2 – April 1	15 - 25%
Final Exam – May 6, 8am	20 - 30%
Major group project – Final due last week of class	20 - 25%
Mini individual project – Mar 28	0 - 15%
Lab, homework, class participation	5 - 15%

I generally grade exams and projects on a 100 point scale. Letter grades correspond to 10 point ranges...90 - 100 = "A", 80 - 89.999 = "B", etc. "F" is used for work below 60%. Labs, homework, wiki participation grades will be based on an A, B, C, F scale. Final grades will be based on your contract and will include + / - grades for extremes within a range.

### Class Policies and Student Success

See the link above for general instructor policies. Specific policies and items which will insure your success in this class are:

- **Come to class**, come to class, come to class - Students who attend class regularly will keep up with the workload better, will gain insights from talking with classmates or the instructor, and will do better in this class as a result. We use a lot of active learning in class so attendance is mandatory. While I will not take formal attendance, you will lose points if in-class work or homework is collected during a class period.
- **Workload** - There will be ongoing assignments throughout the semester for the major project. In addition, there will be reading and reading preparation before most classes. Expect some kind of homework to prep for most classes.
- **Study Guide Wiki** - We will have a study guide that you will contribute to. You will find that if you take some time each week to review and summarize what you have learned, studying for the exams will be less onerous. Contribute to the wiki!
- **Late assignments** - All homework is due at the beginning of class on the day that they are due. No late assignments will be accepted for credit, although I will review late assignments at your request. For project assignments, late assignments will have a 10% per day penalty associated with each deliverable.
- **Exams** - We have two midterms and a final exam. It is expected that all students will take the exams at the normally scheduled time. If an emergency occurs which requires you to be away, let me know as soon as you know about the situation. I may request documentation in order to allow you to take a make-up exam.
- **Honor Code** - I report **ALL** incidents of academic dishonesty to the Honor Council. If the violation is severe, I will refer it to the Honor Council for formal resolution. Less severe violations may be handled informally. If you know of cheating in this class, it is your responsibility to let the instructor know as soon as possible. If you are involved in a situation where you are not sure if what you did was right or violates the Honor Code, please see me for clarification. Examples of violations in this class would include (but not be limited to): sharing answers with another classmate on the exam; lifting work from the web for any portion of the project; two teams collaborating on any of the project deliverables; and individuals collaborating on the mini project. Things that are okay to do in this class include: working with others on homework; collaborating with others in building wiki entries; working within your own team on anything related to the project; and using example code that you may find on w3schools.com or java.com with proper citation.
- **Extra Credit** - I generally do not have extra credit opportunities.

**Student Success** - You will be successful in this class if you:

- **Attend** class and each day and actively participate.
- **Engage** with the material...don't passively listen in class and expect to do well on the application assignments.
- **Ask for help** when you need it. Ask questions during lecture time.
- **Get started early** on assignments.
- **Think** about what you are doing...don't just do. In this course, the why is more important than the what.
- **Experiment** with the database management systems that we will be using.

If you need additional resources to help you with your learning, let me know. Additional reference books may be placed in the library upon request and I have some database books that you may borrow for short periods if you need additional resources.

**Students with Disabilities:** If you are a student with a documented disability, who will be requesting accommodations in my class, please make sure you are registered with the Office of Disability Services, Wilson Hall, Room 107 (568-6705) and provide me with a

copy of your Access Plan letter outlining your accommodations. I will be glad to meet with you privately during my office hours or by appointment to discuss your special needs. The sooner you can do this, the better I can assist you in meeting your learning goals in this course.

**Student Responsibility:** Students are responsible for adding and dropping courses via e-campus, adhering to the dates posted on the registrar's web site for the semester. I do not give "WP" or "WF" grades to students requesting a drop after the deadline except in extraordinary circumstances.

**Religious observance and other planned absences:** Students who are unable to attend class due to religious observance, athletic competition, academic competition or academic events may request deadline extensions BEFORE the expected absence. I will do my best to accommodate your special circumstances.

**Academic Integrity:** Don't put yourself into a position of providing unauthorized help to another student. Labs are designed for free exploration and that includes working with others. Programming assignments are your way to test what you know and test your problem solving ability as well as for me to evaluate your abilities. All programming assignments must reflect individual effort. See the more detailed collaboration policy for what is and is not acceptable with regard to programming assignments posted in Blackboard. If you have a question about what help may be provided, please see me.

**Inclement Weather Policies:** If JMU closes due to weather or other emergency, (see policy 1309), please access the Blackboard announcements page for this class for information about making up the class. In most situations we will either make up the material at other times in the semester or do the planned work in an online environment.