James Madison University
College of Integrated Science & Technology
Department of Computer Science

# CS 474 Database Design and Application
## Course Syllabus – Spring 2009

Professor: Dr. Elizabeth S. Adams
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Office Hours:
Mondays: by appointment AND whenever my door is open
Tuesdays: 10:00pm - 11:00am
Wednesdays: 1:00pm - 3:00pm
Thursdays: 6:15 - 7:15pm
Fridays: by appointment AND whenever my door is open

Class Room for Both Sections: HHS 2208

**Final exam information**
**day: Wednesday, May 6th from 7:00pm to 9:00pm in room: to be determined**

Class Meeting Times:

| Tuesday | | Thursday | |
|---|---|---|---|
| Section 001 | 3:30-4:45pm | Section 001 | 3:30-4:45pm |
| Section 002 | 5:00-6:15pm | Section 002 | 5:00-6:15pm |

## Course Description:
This course introduces the fundamental concepts, terminology and techniques for designing and implementing a normalized database using a relational database management system.

## Topics to be covered include:
- History of Database Management Systems
- The role of databases and database applications in contemporary organizations
- The relational model
- The entity-relationship model
- The semantic object model
- Database Design & Database Integrity
- Functional dependencies & Normalization
- Relational Implementation & Relational Algebra
- Database Application Design

- Concurrency, Security & Database Recovery
- SQL
- Database Access Standards

## Required Text:

Database Processing: Fundamentals, Design & Implementation, Eighth Edition, by David M. Kroenke, published by Prentice-Hall. This book is no longer being distributed by the publisher so you will need to go online and get it from Amazon.com or anyone else who has it. A used copy is fine.

## Other References:

A SQL Guide (will be discussed in class)

## Software:

Microsoft SQL Server
Microsoft Access

## Course Objectives:

- To understand the nature and characteristics of databases
- To understand the architecture and components of a Database Management System and to be able to use them appropriately;.
- To gain a general understanding of tables and relationships
- To define and understand database design from existing data
- To define and understand database design as new systems development
- To define and understand database design in database redesign
- To understand the history and development of database processing
- To become familiar with the client-server model and to use a DBMS to create a small client-server application..
- To acquire an understanding of the various database modeling techniques and practice using them.
- To learn what database integrity is and how the relational model can enhance it.
- To gain experience in using SQL to build, query, update and manage relational databases
- To gain additional team experience

## General Course Information:

Attendance is an important part of in-class participation. I expect you to attend class regularly. If you must miss a class, it is your responsibility to get any material you have missed. To help you assimilate the material in this course and to prepare you for the tests and the project, there will be quizzes, lab assignments, and homework assignments. There will be a two exams and a final exam. Late work can not be accepted. In-class activities and exams can not be made up. You must take the final to pass the course. Exams are comprehensive. Group assignments must be done in a group not individually. Individual assignments must be done individually not in a group. Please read and become familiar with the JMU Honor Code and don't violate it. You should keep a copy of any work submitted and all graded work returned to you. This is especially important if you believe I have made an error in grading your work or in recording your grade. Here is the link to the course web page https://users.cs.jmu.edu/adamses/web . Lecture notes will be posted on Blackboard as will homework and lab assignments .

I will be happy to help you understand any material you are having difficulty with. Please stop by my office whenever my door is open or send me e-mail. My goal for this semester is to have everyone complete this course successfully but I can't do it alone. Your effort is at least as important as mine.

Tentative Course Element Percentages

| Categories | Weights |
|---|---|
| Quizzes & Homework | 10% |
| Project | 10% |
| Exam 1 | 20% |
| Exam 2 | 25% |
| Final Exam | 30% |
| Attendance/class participation | 5% |

Grade Criteria:

| Grade | A | B | C | D | F |
|---|---|---|---|---|---|
| Average | 90 or more | 80-89 | 70-79 | 60-69 | less than 60 |

Exam Information:

- No makeup exams will be given.
- The dates of the exams will be announced in advance of the exams.
- The final exam will be given: Wedneday May 6th from 7:00-9:00pm. NOTE: we have discussed this in class. It is not the registrar's scheduled time.
- You must take the final to pass the course regardless of the grade you have earned up to that point (i.e. even if you have enough points to pass the course with a 0 on the final, you must take it to pass the course).

# Professor/Course Policies:

## Policy on Incompletes:

Incompletes are not usual. They are never automatic. They will be considered only when circumstances beyond your control prevent timely completion of the course. You can not be granted an incomplete unless you are passing the course at the time you request the incomplete.

## Attendance Policy:

I expect you to attend every class and be prompt. If you are late, please enter quietly so as not to disrupt the class. I would rather you come late than miss an entire class. If you have to miss class, it is YOUR responsibility to get any material you may have missed from another student in the class. If you tell a friend in advance, they can take notes for you.. If you must miss a class, please let me know via e-mail before the class or as soon afterwards as is possible.

## Written Work Policy:

All work done and turned in for grading must be computer generated and printed! This includes charts, pictures, drawings, as well as text. DO NOT turn in work that is hand written unless I specifically announce that it is okay. It must have your name, course number, semester (Spring 2009) and date of submission in the upper left corner of the first page, and multiple pages **must** be stapled together. (Buy a tot stapler if you don't have a stapler at home).

## Email Policy:

When you write to me to ask a question or make a comment, please use your own school account whenever possible and make sure that your mailbox has room for me to respond to you. If you use another account, make sure you identify yourself as I will not open mail if I can't identify the sender. I read e-mail regularly and respond to each and every message.

## The Honor System:

I uphold the JMU Honor Code. Unauthorized collaboration will be punished as will other violations of the JMU Honor System. Some violations to be aware of:

1. Sharing of computer account passwords for any reason.
2. Allow another student to use your computer account unsupervised.
3. Giving or receiving help when we have asked you to work alone.
4. Sharing documents or parts thereof electronically.

You are all here to learn, not only from me, but also from each other. I encourage you to work together towards solutions and to share your knowledge with your classmates. A number of assignments (such as the projects) will be group assignments. Others will be individual assignments (programs, homework, quizzes and tests). I expect that you UNDERSTAND anything that you turn in to me. If you do not at least know what's going on in the code, do NOT take credit for it. Please note that signing a roll for another student is considered cheating and will result in a minimum one-semester suspension from the university.

## Grades:

Grades will be clearly indicated on graded work when it is returned to you. It is your responsibility to keep all graded work until the end of the semester in case you wish to dispute your grade. Grades will be posted on Blackboard

## Missing Tests / Exams: -

Don't! If there is an unavoidable reason for you to miss a test, you must inform me in advance and it **may** be possible for you to make it up. If you miss a test and inform me afterwards, then, depending on the reason, you may be allowed to make it up (with a 25 point penalty). If you miss the final exam, you are out of luck and will not pass the course (i.e. you will earn a grade of F) regardless of your average at that point.

## Final Grades:

Final grades will be available as soon as I have finished grading all work for the course and submitted the grades. Final grades may only be changed if there is a clerical error in the computation or recording of your grade. Please have all of your graded work in your possession when you come to see me if you believe an error has been made.

## Extra Credit:

There will be no extra credit. Do the best job you possibly can on work and assigned readings. If you do not have time to fully complete assignments, you won't have time for extra credit.

## Crisis:

If you get seriously ill or have some family crisis that causes you to miss a deadline, please get in touch with me as soon as possible. I will work with you to help you complete the course.

## Advice:

- LEARN!!! Listen with an open mind. Be skeptical of ideas presented. Do assignments with enthusiasm. The assignments are to aid in your learning, not because I feel you need something to do. College has many purposes: to get you a job, to prove to the world that you can solve problems well, and to educate you. Learning need not be a chore. For whatever reason you're here, realize that I am here to help you learn. I can't however, learn for you. You must do it for yourself.

- PREPARE and REVIEW!!! Prepare for class and review afterwards. Doing the assigned readings before lecture helps greatly in understanding the material as it is presented. Review the lecture material (and your notes) after lecture (the next day perhaps) to make sure that it all still makes sense. Plan to spend at least 2-3 hours of time outside of class for every hour in class

- BE AWARE!!! Know what the course policies are and carefully study the grading scheme for the course. You can see that you will be submitting a lot of work to me. It is important to understand that it is the totality of your work that will determine your grade. No one quiz can seriously affect your grade. You should retain all graded work that is returned to you so that you can study from it and learn from your mistakes. In addition, should you believe that your grade has been incorrectly calculated, the graded work will provide the basis for re-evaluation.

- ENJOY!!! Computer science is fun. It is a fascinating major and one which you will find challenging and rewarding. It's not easy but it can be exciting and exhilarating. Everything takes longer than expected so to keep it fun, keep up to date. This course may be one of the most useful courses you will take in terms of your future in the field.

## Semester Registration and Withdrawal Information

The deadlines for dropping and/or adding spring semester classes on e-campus are as follows (dropping a class after these dates through the course adjustment deadlines result in a "W" grade on the transcript and tuition charges): **Semester Class – Tuesday, January 20, 2009**

The deadlines for adding classes with instructor and academic unit head signatures are as follows **Semester class: Thursday, January 29, 2009**

Getting an override into a full class does not automatically enroll the student in class. You must register on e-campus or, **if the add is made between January 21st and January 29th, at the Registration Services counter in Warren Hall**.

The course adjustment deadlines (to withdraw with a "W" grade or change credit options (from graded credit to credit/no credit or credit/no credit to graded credit)) are as follows:
**Semester Class – Friday, March 20, 2009**