

## Syllabus

### Instructor

Dr. K. Kalpakis  
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Email: kalpakis@csee.umbc.edu  
Class homepage: <http://www.csee.umbc.edu/~kalpakis/Courses/461/>  
Office Hours: Tuesday and Thursday, 1:00pm-2:00pm, and by appointment.

### Meeting Time and Place

Tuesday and Thursday 9:00am-12:10pm  
Room ITE 233

**Teaching Assistant:** Parag Namjoshi, Room ITE 366,  
Phone: 410-455-8945, Email: nam1@csee.umbc.edu  
Office hours: Tuesday and Thursday, 1:00pm-2:00pm, and by appointment.

### Important Dates

- Midterm Exam, July 27, 2006, 9:00am-10:15pm.
- Final Exam, August 17, 2006, 10:00am-12:10pm.

**Prerequisites** CMSC-341, or permission of the instructor.

**Text.** The required text is “Database System Concepts. 5th Edition” by Silberschatz, Korth, and Sudarshan published by McGraw-Hill, 2005.

### List of Topics (tentative).

- Entity-Relationship Model
- Relational Model
- SQL
- Normalization
- Design Methodology
- Storage and File Structures

- Indexing and Hashing
- Query Processing
- Transactions
- Security
- Concurrency Control and Recovery
- System Architectures
- Special topics (TBA)

**Course objectives:**

Databases touch all aspects of our everyday lives. Database technologies enable us to manage vast and diverse amounts of data and information efficiently, and consequently are an indispensable component in the toolbox of every Computer Scientist. In this course, each student will (a) learn the fundamental concepts of database management, including database design, models and languages, and system-implementation techniques, and (b) develop skills to apply those concepts in practical data management applications.

**Required Work**

Required work consists of (1) taking the midterm exam and final exam, (2) homework assignments, and (3) a project. Further, you are expected to actively participate in class discussions.

Homework assignments will help you master the fundamental concepts of database systems, while the project assignment will help you in developing skills to apply these concepts in practical data management applications. The exams will be yet another opportunity to receive feedback with respect to your accomplishment of the course objectives.

**Assignments**

There will be at least four homework assignments. Homework assignments involve design, analysis, and software development and will need to be completed in a short period of time, usually in about a week.

There will also be a semester long project assignment, which will have a design, analysis, and development component. Basic programming skills using the Java 2 (version 1.4.2 or later) programming language are needed in the project. The project may have multiple phases, with later phases depending on earlier phases. At the end of each phase, you will be submitting a project progress report and any software developed, and may be asked for a demonstration of your achievements in an oral presentation. Details about each phase and their due dates will be provided within the first couple of weeks of classes.

**Ground Rules for Assignments**

- Assignment details, due dates, etc will be posted at the class homepage. Students are strongly advised to check the class homepage on a regular basis. Failure to do so is not an acceptable excuse for missing an assignment or for not adhering to the assignment's instructions.

- You may develop the programs, if any, for your assignments using the computers available to you at UMBC, or any other computer available to you. However, no matter what computer you use to develop your programs, you must make sure that your programs can run successfully on the GL Linux computers at UMBC.
- All assignments must be submitted electronically by the date they are due according to the assignment's submission instructions. No late assignments will be accepted, unless University Policy states otherwise.
- In submitting an assignment, students must adhere to the submission instructions specified by that assignment.
- The written part of each assignment must be typed using a word-processor of your choice (you may include hand-written mathematical formulas and/or diagrams as images in your documents). No matter how you prepare the written part of your assignment, it must be submitted in the Adobe PDF format. No other formats are going to be accepted.
- No collaboration. Unless otherwise specified, each assignment is to be done and written individually by each student. Students should not collaborate on any assignment. The only exception would be for assignments explicitly designated as team assignments, where team members are expected to collaborate in completing such an assignment.
- Students may be asked to come in and explain their solution(s) to an assignment to the instructor(s) and/or TA(s). Failure to satisfactorily demonstrate authorship of a solution is a violation of Academic Integrity policy.

Students are strongly advised to keep up with the assignments and other coursework. Homework and project assignments do demand the amount of time allocated to them.

### **Exams**

There will be one midterm exam and a comprehensive final exam. All the exams will take place in class and will be closed-book and closed-notes. Make-up exams are possible only under University Policy. You should make prior arrangements with the instructor if you expect to miss an exam.

Each student should have his student photo identification card or driver's license when taking an exam. Failure to produce a proper photo ID may result in getting a zero on that exam.

### **Communication**

Students are strongly advised to check the class homepage, and the course Blackboard area

<http://blackboard.umbc.edu>

on a regular basis for news, announcements, and assignments. Failure to do so is not an acceptable excuse for missing an assignment or announcement.

Students are welcome to use the course Blackboard area to discuss topic matters. However, student's are advised not to solicit or post solutions to any assignment or otherwise violate Academic Integrity policy.

### **Grading Policy**

The course grades will be determined as follows. For each course activity in Table 1, each student

Activity	Weight
Homework	10%
Project	30%
Midterm Exam	30%
Final Exam	30%
Total	100%

Table 1: Course Activities and their relative weights.

will receive an activity score, which will be the average of the student's scores on the assignments for that activity. An activity score is a number in the range  $0 \dots 100$ . A term score will be computed by taking the weighted sum of the activity scores, using the relative weights given in Table 1. The instructor will convert term scores into letter grades by using the following mapping:

$$[90, 100] \Rightarrow A, [80, 90) \Rightarrow B, [70, 80) \Rightarrow C, [60, 70) \Rightarrow D, [60, 100] \Rightarrow P, [0, 60) \Rightarrow F.$$

Incomplete grades will issued only under those extreme situations described by University Policy for granting incompletes. Failure to complete assignments on time is not a sufficient reason for an incomplete.

**Necessary, but not sufficient, conditions to pass the course are as follows: you must have a homework activity score of at least 50% of the points, at least 60% of the points for the project, and at least 30% of the points for each exam, including the final exam.**

### Academic Integrity Policy

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, **but is not limited to**, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory.

**There is no tolerance for academic dishonesty in this course. Any and all academic dishonesty acts will be treated severely, as prescribed in the UMBC's Student Academic Conduct Policy.**

### ADA Compliance

We recognize that some of you may have disabilities that require special attention from the instructional staff. Please make us aware of them at your earliest so that UMBC can make suitable arrangements.