Syllabus

Instructor
Dr. K. Kalpakis
Computer Science & Electrical Engineering Department
Office: ITE 348
Phone: (410) 455-3143
Email: kalpakis@umbc.edu
Class homepage: http://www.csee.umbc.edu/~kalpakis/Courses/661/
Office Hours: Tuesday and Thursday, 4:15pm-5:15pm, and by appointment.

Meeting Time and Place
Tuesday and Thursday 2:30pm–3:45pm
Room ITE 227

Teaching Assistant: Nikos Baroutis, Room ITE 353,
Phone: 410-455-8936, Email: nikbar1@umbc.edu
Office hours: Tuesday and Thursday, 1:00pm-2:00pm, and by appointment.

Important Dates
• Last day of the semester, December 8.
• Final Exam, December 10, 1pm–3pm.

Prerequisites
CMSC–461 or permission of the instructor.

Text.

List of Topics (tentative)
• Storage structures
• Indexing methods
• Query processing
• Transactions
• Concurrency control
• Recovery
• NoSQL and NewSQL
• 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. This course is a second course on databases. In this course, each student will build upon the fundamental concepts of database systems to (a) learn the principles of database system implementation and database design, and (b) develop skills to apply those principles in solving data management problems.

Required Work
Required work consists of (1) taking the final exam, (2) homework assignments, (3) critiques of research papers, (4) one or more presentations of research papers, (5) feedback to presenters, and (6) a project. Further, you are expected to actively participate in class discussions.

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

There will be a number of research papers that will be assigned for presentation to the class. Students will be partitioned into small teams (2-3 students); each team will be assigned one or more papers for presentation in class. The presentation will last for about 45 minutes, followed by discussion. Everyone is expected to actively participate. For each presented paper, each student will (1) complete a critique of the presented paper, and (2) provide feedback to the presenters. Critiques of presented papers are due before the class the paper(s) is presented. Critiques should be prepared according to the form and guidelines provided on the class website. The median of the peer evaluations and the instructor’s evaluation are equally weighted in determining the score of any given presentation. Each team will be given a week to revise its presentation according to the feedback received, and present its revisions to the instructor and/or TA. If no revision is made, the score of the original presentation is used, otherwise the new score is used for the ‘Presentation revisions’.

There is a semester long project. Students will self-organize into teams of 2-4 students, and they will decide on their own project subject to the instructor’s approval/feedback. Each team will prepare a project proposal that addresses the problem considered and its motivation; state of the art (prior work, unresolved issues, etc); proposed technique(s) to be implemented/evaluated; degree to which project reaps existing work; and specific measurable deliverables.

There are three milestones for the project: draft proposal, intermediate report (complete proposal, state of prior art, and plan), and final report (deliverables). A draft project proposal should not exceed 2 pages, while the complete project proposal should not exceed 6 pages. Each team will submit a final project report (not to exceed 12 pages, and follow the common conference
paper format/structure), and prepare a poster presentation (with at most 10 slides) of their project findings.

**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 for 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 a comprehensive final exam. The exam 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](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 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 $0 \ldots 100$. 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.

**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.