Syllabus

Instructor
Dr. K. Kalpakis
Computer Science & Electrical Engineering Department
Office: ITE 348
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Course homepage: http://www.csee.umbc.edu/~kalpakis/Courses/441/
Office Hours: Tuesday and Thursday 1:00pm–2:00pm, and by appointment.

Meeting Time and Place
Tuesday and Thursday 2:30pm–3:45pm
Room ITE 233

Teaching Assistant
Debdatta Mukherjee , Room ITE 353
Phone: 410-455-8936, Email: dmu1@umbc.edu
Office hours: Tuesday and Thursday 1:30-2:30pm, and by appointment.

Important Dates

- Midterm Exam, November 1, 2012, 2:30am–3:45pm.
- Final Exam, December 13, 2012, 1:00pm–3:00pm.

Prerequisites

Text

List of Topics

- asymptotics and recurrences
- sorting and order statistics
- dynamic programming
- greedy algorithms
• basic graph algorithms
• shortest–paths
• maximum–flow
• multithreaded algorithms
• NP–completeness

Course Objectives
In this course students will (1) learn the quantitative methods used in the analysis of algorithms, (2) sharpen their problem solving skills through the design of algorithms, and (3) learn to write explanations for the correctness of algorithms and justifications for their performance. A secondary goal is to familiarize students with a range of fundamental algorithms.

Required Work
Required work consists of (1) taking the midterm exam and final exam, and (2) eight or more homework assignments. Further, you are expected to actively participate in class discussions. Academic dishonesty will be dealt severely according to University Policy.

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.

• All assignments must be submitted electronically using the submit program at UMBC by the date they are due. 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 submitted in the Adobe PDF format. No other formats are going to be accepted.

• No collaboration. Each assignment is to be done and written individually by each student. Students should not collaborate on any assignment.
• Students may be asked to come in and explain their solution(s) to an assignment to the instructor(s) and/or TAs. 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 assignments do demand the amount of time allocated to them.

Exams
There will be a 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 very rare and are possible only in the extreme conditions specified by 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, their section specific webpage, 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 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…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] ⇒ A, [80, 90) ⇒ B, [70, 80) ⇒ C, [60, 70) ⇒ D, [60,100] ⇒ P, [0, 60] ⇒ 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 40% and at least 30% points for each exam, including the final exam.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeworks</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>35%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 1: Course Activities and their relative weights.

The lowest homework score will be dropped.

**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.