Syllabus

Instructor
Dr. Konstantinos Kalpakis
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Class homepage: http://www.csee.umbc.edu/~kalpakis/Courses/691D/
Office Hours: Wednesday, 3:30pm~4:30pm, and by appointment.

Meeting Time and Place
Monday 4:00-7:00pm
Room SS 109

Important Dates
- Final Exam, December 16, 2002, 3:30pm-5:30pm.
- Projects and Reports due, December 9, 2002, 11:59pm.

Prerequisites CMSC–661 or permission of the instructor.

Texts. The required text is: “Spatial Databases with Applications to GIS”, by Philippe Rigaux, Michel Scholl, and Agnes Voisard. Morgan Kaufmann, 2002. In addition, a number of research articles and notes will be made available by the instructor.

Tentative List of Topics.
This course is intended to be a seminar class for students that have sufficient technical background in databases (at least at the level of CMSC–661), and who are interested in investigating certain advanced special topics in databases. The theme is topics in spatial databases: issues and problems, approaches and techniques. Some of the topics to be discussed include

- Spatial Data Models and Query Languages
- Spatial Access Methods
- Spatial Query Processing
- Spatial Selectivity and Cost Estimation
• Spatial Join Processing
• Mobility and Spatial Data
• Spatial OLAP and Warehouses
• Spatial Data Mining
• Spatial Database Systems and GIS
• Selected topics.

**Required Work**

Required work consists of (1) taking the final exam, (2) homework assignments, (3) preparing presentations and reviews of assigned articles, (3) writing a research paper, upon completing a research project. Further, you are expected to **actively** participate in class discussions and presentations.

There will be a number of homework and paper review assignments. Some may require use of computer systems. Homework and paper review assignments are to be done individually by each student. Each homework and paper review assignment will be due at the beginning of class on the date specified.

Each student is expected to select and prepare presentations of research articles among those provided at the course Web page. Each student is expected to lead the presentation/discussion of two such articles during the semester. Furthermore, each student is required to write a critical review of each article presented. The reviews of each scheduled article for presentation are due at the midnight before the day of the presentation, by email to the instructor. Each student is expected to actively participate in the discussions during the article presentations.

In addition, there will be a research project requiring substantial amount of work. It will involve both theoretical and practical issues in topics of interest, as indicated by the text and the topics of the suggested articles. The project may be carried out by a small team (1-4) of students. Each team is responsible for selecting its own project topic/problem. An outline of the proposed research project must be submitted (the due date for this will be announced later, but it will be around mid-October). Students will write a research paper based on their project.

**No late assignments, reviews, projects, or reports will be accepted, unless University Policy states otherwise.**

There will be a comprehensive final exam. The final exam will take place in class and will be closed–books.
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<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Research Project/Paper</td>
<td>50%</td>
</tr>
<tr>
<td>Presentations, Reviews, &amp; Homework</td>
<td>25%</td>
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<tr>
<td>Class Discussions</td>
<td>5%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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<tr>
<td>Total</td>
<td>100%</td>
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Table 1: Course Activities and their relative weights.

Facilities. You will have access to the facilities and software available in the CSEE department. All computer work will be done on the UMBC Unix-based (or where available Windows NT) computers.

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.

Make-up exams are possible only under University Policy. You should make prior arrangements with the instructor if you expect to miss an exam. 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 at least 50% of the points on each activity, 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.