Syllabus

Instructor
Dr. Konstantinos Kalpakis
Computer Science & Electrical Engineering Department
Office: ITE 348
Phone: (410) 455-3143
Email: kalpakis@csee.umbc.edu
Class homepage: http://www.csee.umbc.edu/~kalpakis/Courses/451/
Office Hours: TuTh 5:30pm–6:30pm, and by appointment.

Meeting Time and Place
Tuesday and Thursday 1:00pm–2:15pm
Room MP008

Teaching Assistant: Suresh Purini
Room ITE 230, Phone: 410-455-TBA, Email: suresh1@csee.umbc.edu.
Office hours: TuTh, noon–1:00pm, and by appointment.

Important dates.

• Midterm Exam 1, March 9, 2006.
• Midterm Exam 2, April 18, 2006.
• Final Exam, May 23, 1:00pm–3:00pm.

Prerequisites. CMSC–202 and CMSC–203, or permission of the instructor.


Tentative list of topics.

• Introduction to Automata, Computability, and Complexity Proof Techniques and Basic Mathematical Concepts
• Finite Automata
• Regular Expressions
• Pumping lemma for Regular Languages
• Context–Free Grammars
• Pushdown Automata
• Pumping Lemma for Context–Free Languages
• Turing Machines
• Decidability and Reducibility

Course objectives.
The theory of formal languages and models to compute with them are the cornerstone of studying and understanding the theoretical foundations of computing. In this course, each student will (a) learn the fundamental concepts of automata and formal languages, (b) develop skills to apply those concepts in reasoning about computations.

Required work. Required work consists of (1) taking the two midterm exams and the final exam, (2) 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.

• 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 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 satisfactory 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. Home-
work and project assignments do demand the amount of time allocated to them.

Homework
There will be at least four homework assignments. Some may require use of computer
systems. (See also ground rules for assignments below).

Exams
There will be two midterm exams 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 assign-
ments. Failure to do so is not an acceptable excuse for missing an assignment or announce-
ment.

Students are welcome to use the course Blackboard area to discuss topic matters. How-
ever, 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 in Table 1. Term scores will be converted to letter grades using the 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
Activity Weight
Homework 15%
Midterm Exam 1 25%
Midterm Exam 2 25%
Final Exam 35%
Total 100%

Table 1: Course Activities and their relative weights.

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 points, and at least 30 points for each exam, including the final exam. For example, if you score below 30% on any of the midterm exams or the final exam, or if you score less than 50% on the total of all the homework, then you will not receive a passing grade. Note that you will need to score at least 60% of the total weighted score for the course in order to receive a passing letter grade (i.e. P or D and above).

**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.