WEST VIRGINIA UNIVERSITY
COLLEGE OF ENGINEERING AND MINERAL RESOURCES
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRICAL ENGINEERING

CS126: Analysis of Algorithms
Fall 2000

3 credit hours

Class Info:	Meeting times:	MWF 09:00-09:50
	Location:	G 83

Instructor:	K. Subramani	
	Email:	ksmani@csee.wvu.edu
	Office:	ESB 749
	Office phone:	293-0405 ext2559

Office Hours: Times: M 10:00-11:00 am
Tu/Th 10:00-11:00 am
Or by appointment

Prerequisites: CS 26 or equivalent undergraduate course on Data Structures/Discrete Mathematics. Familiarity with Programming in one high-level language is highly recommded.

Text: T.H. Cormen, C.E. Leiserson and R. Rivest *Introduction to Algorithms*, McGraw-Hill, 1990.

Software: Some of the homework problems and the course project will require the use of a computer. You should be able to code in a high-level language.

Web-page: A World Wide Web (WWW) homepage is maintained for this class at the following URL:

http://www.csee.wvu.edu/~ksmani/courses.html

This web-page will contain important announcements and materials handed out in class, including homework solutions.

Assessment:	Homework	20% (2 homeworks)
	Quizzes	30%
	Midterm	20%
	Final Exam	30%

Grade Boundaries:

A	90%
B	80%
C	70%
D	60%

You are guaranteed at least the letter grade shown here if you obtain the corresponding score. However, at the discretion of the instructor, these decision boundaries may be adjusted in the students' favor. A '+' or '-' grade may be reported if the score is near a boundary.

Homework/Computer Assignments: There will be 2 homework assignments given in the semester. You will be given at least one week to complete each assignment. Some of the problems may require the use of a computer. Solutions to the written problems will be handed out and/or posted on the web page soon after they are due. ***Late homework will not be accepted.***

Exams: There will be two quizzes, one mid-term exam and a comprehensive final exam.

Missed Test Policy: You are expected to attend the final exam at the scheduled time and date. If you have an unavoidable conflict, please let me know as soon as possible, but no later than one week before the exam. The decision to give a make-up examination is at my discretion. If you miss the exam without first having your absence approved, then the only acceptable excuse is for documented urgent medical reasons or approval by the appropriate university official.

Honor Code: All work submitted for the quizzes, midterm and final exam must be your own unaided work. You may confer with your colleagues on interpretation and approach to homework problems (including the computer assignments), but the solutions must be your own. All code that you turn in for your computer assignments must be well documented and entirely your own work (except for code that was given to you by the instructor).

Regrading: If you believe that I made a mistake or was unfair in my grading, you may request a regrade. However, the request must be made in writing and within one week that the assignment or exam was returned. The decision to change the grade is entirely at the discretion of the instructor.

Attendance: Attendance will not be taken. However, you will be responsible for all material covered in class, even if it is not in the textbook. It is your responsibility to make sure that all assignments are turned in on time and that you are aware of all announcements made in class. Please arrive to class on time.

Social Justice Statement: *West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment, based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Disability Services (293-6700). If you feel that you are being treated inappropriately or unfairly in any way, please feel free to bring your concerns to my attention. Please be assured that doing so will not prejudice the grading process. In return, I expect you to behave professionally and ethically.*

Tentative Schedule

No.	Date	Lecture Topic	Reading
1	8/21	Course policies and overview	this syllabus
2	8/23	Introduction	Chapter 1
3	8/25	Growth of Functions	Chapter 2
4	8/28	Recurrences	Chapter 3
5	8/30	Mathematical Induction	Class
6	9/1	Recurrences	Chapter 4
	9/4	***Holiday --- no class***	
7	9/6	Arrays, Stacks, Queues, Lists	Chapter 11
8	9/8	Binary Search Trees (Homework 1)	Chapter 13
9	9/11	Divide-And-Conquer (Merge-Sort)	Notes
10	9/13	Quick-Sort	Chapter 8
11	9/15	Heap-Sort	Chapter 7
12	9/18	Medians and Order Statistics	Chapter 10
13	9/20	Greedy (General Approach)	Chapter 17
14	9/22	Greedy (contd.)	Chapter 1
15	9/25	***Quiz 1***	
16	9/27	Dynamic Programming (Matrix Multiplication)	Chapter 16
17	9/29	Dynamic Programming (Longest Common Subsequence)	Chapter 16
18	10/2	Dynamic Programming (Polygon Triangulation)	Chapter 16
19	10/4	Midterm-Review	
20	10/6	***Midterm***	
21	10/9	Graphs and Representations	Chapter 23
22	10/11	Breadth-first search	Chapter 23
23	10/13	Depth-first search	Chapter 23
24	10/16	Topological sort	Chapter 23
25	10/18	Minimum Spanning Tree (Prim)	Chapter 24
26	10/20	Minimum Spanning Tree (Kruskal)	Chapter 24
27	10/23	Single-Source Shortest Path	Chapter 25
28	10/25	Dijkstra' Algorithm	Chapter 25
29	10/27	All-Pairs Shortest Path	Chapter 26
30	10/30	All-Pairs Shortest Path	Chapter 26
31	11/1	Amortized Analysis	Chapter 18
32	11/3	Amortized Analysis (Homework 2)	Chapter 18
33	11/6	Red-Black Trees	Chapter 14
34	11/8	Lower Bound Theory	Notes
35	11/10	***Quiz 2***	
36	11/13	Maximum flow	Chapter 27
37	11/15	Maximum flow (contd.)	Chapter 27
38	11/17	Maximum flow (contd.)	Chapter 27
	11/20-11/24	***Thanksgiving break --- no class***	
39	11/27	Number-Theoretic Algorithms	Chapter 33
40	11/29	Cryptography	Chapter 33
41	12/1	Computational Geometry	Chapter 35
42	12/4	Computational Geometry	Chapter 35
43	12/6	Review	
44	12/8	Review	
	12/14	***FINAL EXAM, Wednesday, December 13, 08:00 - 10:00 AM***	