

TIME TABLE: 66052 MWF 10:00 – 10:50 in 208 Burnham Hall from 01/13/2003 to 05/02/2003.

DISCUSSION SESSIONS: To be properly registered, you must enroll in one of the following sessions:

66083 Tue 10:00-10:50AM 301 LH or 66074 Tue 11:00-11:50AM 307 AH

66069 Thu 10:00-10:50AM 309 TH or 66095 Thu 11:00-11:50AM 115 SH

The TA for this course is Libin Liu (lliu2@math.uic.edu), SEO 408, Phone 312 996 3049.

PREREQUISITES: grade C or better in MCS 261 and in MCS 275.

INSTRUCTOR: Jan Vershelde, Office: 728 SEO, Phone: 312 996 4609.

E-mail: jan@math.uic.edu. URL: <http://www.math.uic.edu/~jan>.

OFFICE HOURS: At 3PM on Monday, 11AM on Wednesday, and 1PM on Friday, I am sure to be in my office; but feel free to stop by if you have any math questions. We can also make an appointment.

TEXT BOOK: The text book for this course is ‘Data Structures Using C and C++’, by Yedidyah Langsam, Moshe J. Augenstein, and Aaron M. Tenenbaum, second edition, Prentice Hall, 1996.

MCS 360 SITE: See <http://www.math.uic.edu/~jan/mcs360/index.html> for policies, list of topics, project descriptions, etc...

HOMEWORK: Selected homework problems are assigned with each lecture, but it is recommended that you try all homework problems.

QUIZZES: There will be a quiz every discussion session, except during exam weeks. Every quiz is worth 10 points. There will be no makeup quizzes. If you miss a quiz or if your performance is bad, you can turn in the assigned homework to regain some of the points lost.

PROJECTS: Five projects will be assigned during the semester, worth jointly a total of 200 points. The deadline for each project occurs at 10AM, before the lecture starts. Late submissions are accepted till 5PM the same day, but are penalized with 10 points off. Note that late correct projects may thus then still be worth more than incorrect but timely submitted programs.

ACADEMIC HONESTY: No student shall claim or submit the work of another as ones own. You may discuss homework and projects with others, but must finish it and write the solution yourself without looking at others’ work. Allowing someone to copy from you is also punishable.

EXAMS: During the semester, there will be two exams worth 100 points each. There will be no makeup exams given. The final exam counts for 200 points. If an exam is missed, then greater weight will be placed on the final exam, especially on the material covered on the missing exam.

GRADING SCALE: 90 – 100% = A, 80 – 89% = B, 70 – 79% = C, 60 – 69% = D, 0 – 59% = E.

Your course grade is based on a total of 700 points: 100 from the quizzes, 200 from the projects, 200 from the exams during the semester, and 200 from the final exam.

CLASS ATTENDANCE: Students are expected to attend all class meetings. Any changes in this syllabus or in the scheduling of exams and other assignments will be announced during class meetings. While the lectures cover the same materials in the text book, usually other examples will be presented and discussed. We will also address the topics you need to implement the projects.

SOME IMPORTANT DATES:

Monday 20 January: Martin Luther King Day, no class.

Friday 24 January: last day to drop the class with refund

Friday 21 February: last day to drop the class late.

Friday 8 March: last day to withdraw from the course.

Monday 17 – Friday 21 March: Spring break.

Friday 2 May: last day of classes.

Wednesday 7 May: final examination.

COURSE OUTLINE and HOMEWORK ASSIGNMENTS – subject to minor changes :

L-1	Mon 13 Jan	1.1	Numbers and Abstract Data Types — 1.1.7,8
L-2	Wed 15 Jan	1.2,3	Composite data types — 1.2.1,3,7; 1.3.1,4,6
L-3	Fri 17 Jan	1.4	Classes in C++ — 1.4.2,3
	Mon 20 Jan	Martin Luther King Day — no class	
L-4	Wed 22 Jan	2.1	Stacks: definition and examples — 2.1.2,3,4
L-5	Fri 24 Jan	2.2,3	Representing stacks in C and C++ — 2.2.3,4,5,6,8
L-6	Mon 27 Jan	2.3	Infix, Postfix, and Prefix — 2.3.1,2,3,6,7,8
L-7	Wed 29 Jan	3.1,2	Recursive algorithms — 3.1.3,5,7; 3.2.1,2,3,5,8
L-8	Fri 31 Jan	3.3	Writing recursive programs — 3.3.5,7,8,10
L-9	Mon 3 Feb	3.4,5	Simulating recursion, efficiency — 3.4.3,6; 3.5.1
L-10	Wed 5 Feb	4.1	The queue — 4.1.3,5,6,9,11,12
L-11	Fri 7 Feb	4.2	Linked Lists — 4.2.2,3,4,5,7
Project 1 due Monday 10 February at 10AM			
L-12	Mon 10 Feb	4.3,6	Lists in C and C++ — 4.3.1,3,4,7,9,10
L-13	Wed 12 Feb	4.3,6	Lists in C and C++ — 4.6.1,2
L-14	Fri 14 Feb	4.4	Simulation — 4.4.3,4,6
L-15	Mon 17 Feb	4.5	Other list structures — 4.5.1,3,4,7
L-16	Wed 19 Feb	Review of chapters 1 to 4	
L-17	Fri 21 Feb	First midterm covers chapter 1 to 4	
L-18	Mon 24 Feb	5.1	Binary trees — 5.3.1,2,3,5
L-19	Wed 26 Feb	5.2	Representations of binary trees — 5.2.2,4,5
L-20	Fri 28 Feb	5.2	Binary tree traversals — 5.2.6,8,10,11
Project 2 due Monday 3 March at 10AM			
L-21	Mon 3 Mar	5.3	Example: the Huffman algorithm — 5.3.1,2,3,5
L-22	Wed 5 Mar	5.4	Representing lists as binary trees — 5.4.1,2
L-23	Fri 7 Mar	5.4	Implementing tree-represented lists — 5.4.3,5,6,7
L-24	Mon 10 Mar	5.5	Traversing trees — 5.5.1,2,5
L-25	Wed 12 Mar	5.5	General expressions as trees — 5.5.7,8,9
L-26	Fri 14 Mar	5.6	Example: Game Trees — 5.6.2,5,6,8
Project 3 due Monday 24 March at 10AM			
L-27	Mon 24 Mar	6.1	General background — 6.1.2,4,5,9,10
L-28	Wed 26 Mar	6.2	Exchange sorts: bubble sort — 6.2.1,2,4,5
L-29	Fri 28 Mar	6.2	Exchange sorts: quicksort — 6.2.7,10,11,12
L-30	Mon 31 Mar	6.3	Selection and tree sorting — 6.3.1,2,3
L-31	Wed 2 Apr	6.3	heapsort — 6.3.4,6,7
L-32	Fri 4 Apr	6.4	Insertion sorts — 6.4.2,4,5,8
L-33	Mon 7 Apr	6.5	Merge and radix sorts — 6.5.1,2,5,7
L-34	Wed 9 Apr	Review of chapters 5 and 6	
L-35	Fri 11 Apr	Second midterm covers chapters 5 and 6	
Project 4 due Monday 14 April at 10AM			
L-36	Mon 14 Apr	7.1	Basic search techniques — 7.1.1,2,3,8,11
L-37	Wed 16 Apr	7.2	Tree searching — 7.2.1,3,6,8,10
L-38	Fri 18 Apr	7.3	General search trees — 7.3.4,9
L-39	Mon 21 Apr	7.3	B-Trees — 7.3.1,2,5,7
L-40	Wed 23 Apr	7.4	Hashing — 7.4.1,2,5
L-41	Fri 25 Apr	7.4	More hashing — 7.4.6,8
L-42	Mon 28 Apr	Review of Chapters 1 to 4	
Project 5 due Wednesday 30 April at 10AM			
L-43	Wed 30 Apr	Review of Chapters 5 and 6	
L-44	Fri 2 May	Review of Chapter 7	
Wednesday 7 May, 8:00AM – 10:00AM : Final Exam – room to be announced.			