

# CSC 172 : DATA STRUCTURES

## SPRING 2012

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**Texts:** Data Structures and Algorithm Analysis in JAVA, 3<sup>rd</sup> Edition  
by M. A. Weiss  
The C Programming Language  
by B. W. Kernighan and D. M. Ritchie

**Grad TA Staff:** (username@cs.rochester.edu)

- Ryan Yates <ryates at cs dot rochester dot edu >

**Lectures:** T-R 2:00PM-3:15PM, Lattimore 201 (CRN 28555)

Attendance is not required in lecture. However, changes to the assignments, schedule, syllabus, and deadlines may be announced only in lecture. Quizzes given in lecture may not be announced in advance and cannot be made up.

### Labs:

Students must register for one lab session.  
Labs begin on January 23<sup>rd</sup>.  
Attendance is required and counts for part of the lab grade.  
M,W 2:00PM-3:15PM Gavett 244 (CRN 28561)  
M,W 6:15PM-7:30PM Gavett 244 (CRN 28576)  
Students are expected to know the names of their lab TAs.

### Workshops:

Workshops are scheduled during the first week of class.

Workshops being on January 28<sup>th</sup>.

Attendance is required and counts for the grade.

### Grading:

Minor (up to 10%) adjustments may be made to the weights and number of assignments at the discretion of the instructor.

- Midterm Exam = 10%
- Projects (3 or 4) = 30%
- Final Exam = 25%
- Quizzes (10) = 10%
- Labs (20) (attendance required) = 20%
- Workshop (participation required) = 5%

Labs have hard deadlines : zero credit for being late.

Projects have soft deadlines : -2% per hour.

Workshop grade will be based on class participation.

### Syllabus and Lecture Schedule:

Read the assignment before the lecture.

If you are unable to do the exercise on your own after the lecture, then you should go to the help session.

This schedule is subject to change without notice at the discretion of the instructor.

DATE	READING	LECTURE	SELF TEST EXCERCISE
1/18		INTRODUCTION	
1/24	Weiss 1.1, 1.2, 1.3 K&R Chap 1	Math Review Intro to "C"	Weiss 1.5,1.7,1.12 K&R 1-1,1-15,1-22
1/26	Weiss 1.4,1.5,1.6 K&R Chap 2	JAVA Generics C Data	Weiss 1.13, 14, 1.15
1/31	Weiss Chap 2 K&R Chap 3	Algorithm Analysis C Control	W: 2.1, 2.7,2.11,2.12
2/2	Weiss 3.1 -> 3.5 K&R Chap 4	Lists C Functions	W: 3.7, 3.9 KR:4-4,4-7
2/7	K&R 5.1,5.2,5.3	C Pointers	KR: 5-1,5-2

2/9	Weiss 3.6, 3,7 K&R 5.4, 5.5	Stacks, Queues Address Arithmetic	W:3.8,3.10,3.28 KR: 5-3, 5-6
2/14	Weiss 4.1, 4.2, 4.3 K&R 5.6	Trees Pointers to Pointers	W: 4.1 -> 4.9 KR: 5-7
2/16	Weiss 4.4 K&R 5.7, 5.8, 5.9	AVL Trees Multi Arrays	W: 4.19, 4.21, 4.26 KR: 5-9
2/21	Weiss 4.6, 4.8 K&R 5.10 -> 5.12	Sets & Maps Pointers to Functions	W: 4.31, 4.41, 4.51 KR: 5-14, 5-20
2/23	Weiss Chap 5 K&R 6.1 -> 6.3	Hashing C Structures	W: 5.1,5.17 KR: 6-1
2/28	Weiss 6.1,6.2,6.3 K&R 6.4, 6.5	Heaps C Self Reference	W: 6.2, 6.3 KR: 6-3,6-4
3/1	Weiss 6.4,6.9 K&R 6.7-6.9	Priority Queues C Tables	KR: 6-5
3/6		Overflow & Review	
3/18	Cumulative	MIDTERM EXAM	REST
3/13		SPRING BREAK	PARTY!
3/15		SPRING BREAK	REST
3/20	Weiss 7.1-7.4 K&R 7.1, 7.2	Simple Sorts C I/O	W:7.1,7.2,7.4,7.5 KR: 7-1
3/22	Weiss 7.5, 7.6 K&R 7.3	Heapsort, Mergesort C Args	W: 7.11,7.12.,7.15,7.17 KR: 7-3
3/27	Weiss 7.7,7.8 K&R 7.4	Quicksort C Scanf	W: 7.19, 7.20, 7.30 KR: 7-4, 7-5
3/29	Weiss Chap 8 K&R 7.5	Disjoint Sets C Files	W: 8.1, 8.7
4/3	Weiss 9.1, 9.2 K&R 7.6	Graphs C Errors	W: 9.1, 9.3
4/5	Weiss 9.3, 9.4 K&R 7.7	Shortest Path C Lines	W: 9.5, 9.7a,9.10 KR: 7-6
4/10	Weiss 9.5,9.6,9.7 K&R 7.8	Min Span Trees Mis'C'ellaneous	W: 9.15
4/12	Weiss 10.1 K&R 8.1	Greedy Algorithms C stdio	W: 10.3, 10.10
4/17	Weiss 10.2 K&R 8.2	Divide & Conquer C low level I/O	W: 10.22, 10.24
4/19	Weiss 10.3 K&R 8.3	Dynamic Programming	W: 10.28, 10.31, 10.35

4/24	Weiss 10.4 K&R 8.4	Randomized Algorithms OCCU	10.36 KR: 8-1
4/26	Weiss 10.5	Backtracking	W:10.42, 10.43
5/1		Overflow & Review	
5/11	Cumulative	FINAL EXAM Friday, May 11 4PM-7PM	