

CSC 172 : DATA STRUCTURES

SPRING 2016

Instructor: Dr. T. F. Pawlicki
CSB 736, ext. 5-4198
<pawlicki at cs dot rochester dot edu>
pawlicki@cs.rochester.edu
Office Hours:
M 1:30pm-2:30pm
T 10:30am-11:30am
W 11:00am-noon
F 11:30am-12:30pm

Web Page: my.rochester.edu

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

Some nice optional texts :

Structure and Interpretation of Computer Programs
by H. Abelson and J. Sussman with J. Sussman
Foundations of Computer Science
by A. Aho and J. Ullman

Lectures: T-R 3:25PM-4:40PM, HUTCH 141

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:

Register for one lab session - two meetings times per week.
Each lab TA will manage grades for a specific set of students.
Students are expected to know the names of their lab TAs.
Labs will be issued on Sunday and due the next Sunday.

Workshops:

Workshops are scheduled during the first week of class.

Workshop participation does count for the grade. Workshops are useful for quiz and exam preparation. It is important to know the contact information of your workshop leader as the workshop leaders manage the quiz and exam grades.

Grading:

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

• Exam 1	= 15%
• Exam 2	= 15%
• Exam 3	= 15%
• Exam 4	= 15%
• Projects (3 or 4, ~5% each)	= 20%
• Quizzes (10)	= 10%
• Labs (20)	= 5%
• Workshop Participation	= 5%

Labs have hard deadlines : zero credit for being late.

Projects have soft deadlines : -2% per hour.

ACADEMIC HONESTY : All assignments and activities associated with this course must be performed in accordance with the University of Rochester's Academic Honesty Policy. More information is available at: www.rochester.edu/college/honesty.

Students are strongly encouraged to collaborate, work together, and share ideas. Students are free to work in groups or individually for labs and projects. Students are free to use outside resources (library and the Internet). On programming assignments (labs and projects) proper attribution (citation of sources and credit for collaborators) counts as part of the assignment score. All exams and quizzes are closed book and absolutely no electronic devices are allowed.

One *recommended* method for effective collaboration is to use a “Clean Room” methodology. Meet with a study group and solve the problem on a white board to the point where everyone fully understands the solution. At the end erase the board. Do not take any written, photographic, or digital records of the solution out of the “clean room”. Only take out what is in your own mind. Everyone goes and re-creates the solution on their own. This is a great way to collaborate and learn while assuring that the knowledge is internalized.

Syllabus and Lecture Schedule:

Read the assignment before the lecture.

Read the book. You are responsible for all the material in all the reading assignments regardless of whether the topics are the subject of lectures, labs, projects or not.

Exams will be during the regular lecture session.

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

DATE	READING	LECTURE	SELF TEST EXERCISE
1/14	Weiss Chap 1.1->1.4	INTRODUCTION	
1/19	Weiss 1.5 -> 2.4 (p38) K&R Chap 1	Java Generics	Weiss 1.5,1.7,1.12 K&R 1-1,1-15,1-22
1/21		Runtime Analysis	
1/26	Weiss 3.1->3.3 K&R Chap 2	Linked Lists	Weiss 1.13, 14, 1.15
1/28		Recurrence Relations C Pointers	
2/2	Weiss 3.4.->3.5 (p76) K&R Chap 3	Stacks & Queues	W: 2.1, 2.7,2.11,2.12
2/4	EXAM 1		
2/9	Weiss 4.1 -> 4.2 K&R Chap 4	Trees	W: 3.7, 3.9 KR:4-4,4-7
2/11	Weiss 4.2.-4.3	BS Trees	KR: 5-1,5-2

	(p114) K&R 5.1,5.2,5.3		
2/16	Weiss 4.4 K&R 5.4, 5.5	AVL Trees	W:3.8,3.10,3.28 KR: 5-3, 5-6
2/18	Weiss 4.5-4.8 (p152) K&R 5.6	Splay Trees, B Trees	W: 4.1 -> 4.9 KR: 5-7
2/23	Weiss 5.1-5.12 K&R 5.7-5.12	Hashing	W: 4.19, 4.21, 4.26 KR: 5-9
2/25	Weiss Chap 6 K&R 6.1 -> 6.3	Heaps & Priority Queues	W: 5.1,5.17 KR: 6-1
3/1	EXAM 2		
3/5-3/14	SPRING BREAK		
3/15	Weiss 7.1-7.4 (324) K&R 7.1, 7.2	Simple Sorts C I/O	W:7.1,7.2,7.4,7.5 KR: 7-1
3/17	Weiss 7.5, 7.6 K&R 7.3	Mergesort C Args	W: 7.11,7.12.,7.15,7.17 KR: 7-3
3/22		Heapsort	
3/24	Weiss 7.7,7.8 (367) 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
3/31	EXAM 3		
4/5	Weiss 9.1, 9.2 (410) K&R 7.6	Graphs C Errors	W: 9.1, 9.3
4/7	Weiss 9.3, 9.4 K&R 7.7	Shortest Path C Lines	W: 9.5, 9.7a,9.10 KR: 7-6
4/12	Weiss 9.5,9.6,9.7 (453) K&R 7.8	Min Span Trees Mis'C'ellaneous	W: 9.15
4/14	Weiss 10.1 K&R 8.1	Greedy Algorithms C stdio	W: 10.3, 10.10
4/19	Weiss 10.3 K&R 8.3	Dynamic Programming	W: 10.28, 10.31, 10.35
4/21	Weiss 10.4 K&R 8.4 (539)	Randomized Algorithms OCCU	10.36 KR: 8-1
4/26	EXAM 4		