

CS 202: Fundamental Structures of Computer Science II

Summer 2012

Instructors: Hüseyin Özgür TAN
hozgur at cs dot bilkent dot edu dot tr

TAs: Ömer Erdil Albayrak
oalbayrak at cs dot bilkent dot edu dot tr
EA 425 (Engineering Building)
Özlem Gür
ogur at cs dot bilkent dot edu dot tr

Lectures: Mon 8:40-10:30
Tue 15:40-17:30
Thu 10:40-12:30
BZ08

Course Website: <http://www.cs.bilkent.edu.tr/~hozgur/teaching/cs202>

Text Books: *(Required)* F.M. Carrano, *Data Abstraction and Problem Solving with C++*, 5th edition, Addison-Wesley, 2006. (You can also use the other editions.)
(Recommended) H.M. Deitel and P.J. Deitel, *C++ How to Program*, 5th edition, Prentice Hall, 2005. (You can also use the other editions.)
(Recommended) M.A. Weiss, *Data Structures and Algorithm Analysis in C++*, Addison-Wesley, 2006.

Course Description

The course discusses concepts related with algorithmic efficiency on basic abstract data types. First, the course introduces algorithmic efficiency on basic abstract data types and some sorting algorithms that utilize recursion. Then the course discusses the abstract data types of trees, tables, priority queues, and graphs. It also shows how one can implement these abstract data types in C++ using fundamental data structures by emphasizing run-time complexity analysis.

Grading Policy

Midterm 1	: 25 % (closed-book, closed-notes) – Date TBA
Midterm 2	: 25 % (closed-book, closed-notes) – Date TBA
Final	: 25 % (closed-book, closed-notes) – Date TBA
Homeworks	: 15 %
Quizzes	: 10 %

Quizzes

There will be five in-class quizzes. Quizzes will be given in class with advance notice. The quizzes will be closed-book and closed-notes. There will be NO make-up quiz.

Homework Assignments and Late Policy

- Assignments will be posted on the course website 1-2 week before their due date.
- You should submit your homework before 18:00 on the due date. For the late assignments, you will be given a total of three grace days (whole or partial) for the whole semester. Once these late days have been exhausted, no late assignments will be accepted. As an example, if you submit your first assignment 29 hours late, you will have used two late days and have only one day left. If you then submit your second assignment 5 hours late, you will have used your remaining late day. If you submit your third assignment 1 minute late, this assignment will not be accepted.
- You have to do your own homework. **CHEATING WILL BE HEAVILY PUNISHED.**

Important Notes

After you have submitted your homework, we (instructors or TAs) may, randomly and without prior notice, question you on your answers. If you fail to answer these questions to the satisfaction of the TA/instructor, you may be charged with cheating on your homework. So, make sure you do the homework assignments yourself, and do not turn in anything that you do not understand completely.

If your exam total (two midterms and one final exam) is below an acceptable threshold, you will fail regardless of other scores.

Academic Integrity

Copying or communicating during an exam is considered as cheating. Students caught cheating in an exam will be subject to disciplinary action, as explained in the “Student Disciplinary Rules and Regulation” (www.provost.bilkent.edu.tr/procedures/AcademicHonesty.htm). Cheating on homework assignments is prohibited. Students caught cheating on assignments will also be subject to disciplinary action.

Schedule:

Week	Subject	Reading	Assignments/Exams
1	Algorithm Efficiency Algorithm Analysis; Substitution; Recursive Trees	Ch.9 (Carrano)	Quiz 1 HW1 out
2	Sorting Pointer Review	Ch.9 (Carrano) Course slides	Quiz 2 HW 1 in HW 2 out
3	Trees (Array-Based), Binary Trees Binary Search Trees	Ch.10 (Carrano)	Quiz 3
4	Binary Search Trees (contd.) Tables, Priority Queues, Heap, Heapsort	Ch.10 (Carrano) Ch.11 (Carrano)	Midterm 1 HW 2 in HW 3 out
5	Balanced Search Trees: AVL 2-3 Trees	Ch.12 (Carrano)	Quiz 4
6	2-3-4 Trees; Red-Black Trees Hashing	Ch.12 (Carrano)	Midterm 2 HW 3 in HW 4 out
7	Graphs	Ch.13 (Carrano)	Quiz 5 HW 4 in HW 5 out
8	--	--	Final HW 5 in