CS 202: Fundamental Structures of Computer Science II
Spring 2014

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Lectures: Mon 9:30-10:20, Wed 10:30-12:20, EB101 (*Section 1*)
Mon 10:30-11:20, Thu 8:30-10:20, BZ05 (*Section 2*)

For some weeks, we may use the following extra class hours. You can learn when they are used by following the class announcements and regularly checking your e-mails.

Mon 8:30-9:20, EB101 (*Section 1*)
Mon 11:30-12:20, BZ04 (*Section 2*)

Course Websites: http://www.cs.bilkent.edu.tr/~tcapin/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 Emphasis and Goals

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 : 12 %
Quizzes : 10 %
Participation/presentation: 3 %

If the average score of your two mid-term exams is equal to or below 30, you will get an **FZ letter grade** and not be allowed to attend the final exam.

If your final exam score is equal to or below 30, you will get an **F letter grade** regardless of other scores.

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 2-3 weeks 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 you 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.

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.

Lectures:

TOPICS	**CONTENTS**
Algorithm analysis	- Algorithm efficiency - Algorithm analysis - Substitution, recursion trees
Sorting	- Sorting
Trees	- Trees - Binary trees - Binary search trees
Priority queues and heaps	- Tables - Priority queues - Heaps - Heapsort
Balanced search trees	- AVL trees - 2-3 trees - 2-3-4 trees - Red-black trees
Graphs	- Graphs
Hashing	- Hashing