Boston University Metropolitan College

Analysis of Algorithms

MET CS 566

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Course Description

Methods for designing and analyzing efficient algorithms, including those used in practice. Topics include sorting, searching, dynamic programming, greedy algorithms, advanced data structures, graph algorithms (shortest path, spanning trees, tree traversals), matrix operations, string matching, NP completeness.

Books

The instructor will post a complete set of notes. No textbook is required since notes will be supplied. However, the following is recommended as a supplement: T.H. Cormen, C.E. Leiserson, R.L. Rivest, and C. Stein, "Introduction to Algorithms," MIT Press. Ideal is the 3rd Ed., 2009, ISBN-13: 9780262033848 but prior editions (much cheaper) will probably be fine as well.

Class Policies

1) **Attendance & Absences** – attendance is required expect that one class may be missed with excuse and make-up
2) **Assignment Completion & Late Work** –students should submit completed assignments via blackboard. Late work may be accounted for by the end of the semester.
3) **Academic Conduct Code** –Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take the time to review the Student Academic Conduct Code:

http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html.

NOTE: [This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.]

Grading Criteria
Assignments: 70%, weighted equally, except that Assignment 1 is worth half of the remaining assignments
Final: 30%.

Class Meetings, Lectures & Assignments

Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame.

Lecture number / Approximate Date / Topic, Subject to <20% change

May 27: Introduction (Cormen et al 1-3)

June 3: Efficiency (Cormen et al 1-3)

June 10: Divide and Conquer I (Cormen et al 4)

June 17: Divide and Conquer II (Cormen et al 4)

June 24: Sorting (Cormen et al 6-8)

July 1: Multi-threading (Cormen et al 27)

July 8 : Advanced Data Structures (Cormen et al 11-13)

July 15 : Dynamic Programming (Cormen et al 15)

July 22 Greedy Algorithms (Cormen et al 16)

July 29: Minimum Spanning Trees (Cormen et al 23)

Aug 5: Shortest Paths + Review for Final (Cormen et al 24)

Aug 12: Final Exam