University of Delaware -- Computer and Information Science

CISC320 – Spring 2008

Introduction to Algorithms

Instructor: Dr. Errol L. Lloyd
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Office Hrs: Tuesday: 12:30-1:30
Thursday: 11:00-12:00
By appointment

Text: Baase and Van Gelder, *Computer Algorithms, Introduction to Design and Analysis, Third Addition*, Addison Wesley, 2000.

Reference: Cormen, Leiserson, Rivest and Stein, *Introduction to Algorithms*, McGraw-Hill & MIT Press, 2nd edition.

Homework: There will be five homework assignments. All will be of the "pencil and paper" variety.

Exam: There will be three exams, tentatively scheduled for Thursday March 20, Thursday April 24, and during the scheduled time in the final exam period. These exams will not be comprehensive, and will be closed book and closed note.

Grading: Homeworks - 40% more or less
Exams - 20% each

Class participation - this is the more or less

Webpage: **http://www.cis.udel.edu/~elloyd/cis320.html**

Late assignments: Assignments are due in class on the assigned date and will NOT be accepted late, since sketches of solutions will be handed out at the end of the class in which the homework is due.

Policies: Exams and pencil and homeworks are intended to measure your individual performance and accomplishments in the course. Thus, the following are considered cheating and will be dealt with accordingly: looking the solution up in any source other than those listed above; looking up the solution by locating a paper in the literature; looking in any way at solutions from other courses at Delaware or elsewhere; posting the problem on the Internet, seeking a solution; etc. You *may* ask others for clarifications of the problem statement. If in doubt, ask the instructor.

Final grades will be formulated by totaling the grades from exams, and homeworks for each student (weighted as noted above), and then assigning appropriate boundaries between letter grades (including +/-). For those close to the boundaries, class attendance and participation can be a positive (or negative) factor.

Objectives of the course:

1. To give the student a good working knowledge of important algorithms in several domains.

2. To give the student an appreciation for, and an understanding of, algorithm design and analysis.

Major topics to be covered (tentative):

Proof by induction
Selection and majority element
Dynamic programming
Minimum spanning trees
Matrix multiplication
Polynomial evaluation
String matching
Searching and sorting
Red/black trees
Union-Find Methods
Shortest paths and transitive closure
Integer multiplication
Parallel algorithms
NP-completeness