CS 572/472 Design and Analysis of Algorithms

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Office Hours: Wednesday: 11:00 a.m. to 12noon.
Tuesday, Thursday: 10am-10:30am; 8:30 pm - 9 pm

This course is an introduction to analysis of algorithms. We would be interested in designing and analyzing efficient algorithms for various problems. We will also address the issue of why some problems are inherently intractable using the theory of NP-completeness.

Please note that the backup lecture days are September 9th, 16th, or October 21st, and/or November 11th (10:30-11:45am), 2006 in case classes cannot be held during normal hours.

1 Week by Week Schedule

Please keep yourself up-to-date with the lectures, as sometimes only selected portions of the Chapters would be covered. It is the responsibility of the student to know what has been covered in the class and when assignments are due.

An outline of the course is as follows:

- Week 1-2: Summary and review of Chapters 1-2.
- Week 2: Homework 1 (Given: Aug 29th Due: September 5th)
- **Test 1**: September 28th, 2006 (in class, closed book).
- Weeks 7-11: Chapters 5 (Dynamic Programming), 6 (Basic search and Traversal Techniques), 7 (Backtracking) and 8 (Branch-And-Bound).
- Week 9: Homework 3 (Given: October 12th. Due: October 24th).
• Test 2: November 2nd, 2006 (in class, closed book).

• Week 12-15: Chapters 2 (The Theory of NP-Completeness) and 3 (Proving NP-Completeness Results) and selected sections from Garey/Johnson’s text book.

• Graduate reading and summary report: please consult me at your earliest convenience for determining your topic of interest, Due: November 30th or earlier.

• Week 14: Homework 4 (Given: November 21st Due: December 5th).

• Final Exam: 4:30-7:00 pm, December 12th, 2006 (in class, closed book).

2 Assignments

Late submissions of homeworks would be accepted, but with a penalty of 20 percent of the grade for that assignment. After one week, late submissions will not be accepted. Under extreme circumstances (such as job related or illness), an extension would be provided on an individual basis.

Also, students are expected to do their own assignments. Consulting anyone for an answer for homework problems will constitute cheating in this course. At this stage of senior/graduate level, cheating is not expected. However, if cheating is proven then the policy of academic ethics of college of EAS (see the University Catalog) will be followed.

Algorithm writing is encouraged for all homeworks. Please note that there will be some mandatory programming assignments. In addition, you may implement some algorithms as programs if that is convenient for you. Programs must be properly commented and well documented to receive full credit.

3 Department Policy on Late Drop

A late drop will be approved only if there is documented evidence that the student was prevented from attending a significant number of classes by circumstances beyond his or her control.

4 Distribution of grades

Department policy of cross-listed courses require that more work be done by graduate students than that expected by undergraduates. Graduate reading and report satisfy this criteria in this course for graduate students.

The distribution of grades (100 percent) is as follows:
1. CS472 Homeworks: (Total: 55 percent). Homework 1 (7.5%), Homework 2 (20%), Homework 3 (20%), Homework 4 (7.5%).

2. CS572 Homeworks: (Total: 55 percent). Homework 1 (6%), Homework 2 (18%), Homework 3 (18%), Homework 4 (6%). Graduate reading and report (7%). For graduate reading and report, up to three selected papers are to be read. A report (maximum five pages) is to be prepared by the student summarizing and analyzing the algorithms in these selected papers.

3. In class closed book, three tests (15% each), dates are given earlier, (Total: 45 percent).

5 Text Books and further reading

1. Computer Algorithms by Horowitz, Sahni, and Rajasekaran

2. Computers and Intractability: Garey and Johnson.


6 Office Hours

You are welcome to discuss/talk about the course any time you find me free. If I am busy outside the office hours then please do return at some later time so that I could answer your questions. You could also send me an e-mail at semwal@cs.uccs.edu.