COMP4030/6030: Design and Analysis of Algorithms – Spring 2016
Instructor: Dr. Vinhthuy Phan (vphan@memphis.edu, 678-1535)

Time: TR 1PM-2:25PM
Location: Dunn Hall 119

Office Hours: Monday 10AM or by appointment, Dunn Hall 309

Description: the course introduces fundamental algorithms design techniques such as divide and conquer, dynamic programming, greedy. Prerequisite: COMP 2700

Learning Outcomes:
- An ability to analyze problems and identify requirements appropriate to solving problems.
- An ability to apply knowledge of computing and mathematics to Computer Science.

Recommended textbooks:
- “Algorithms”, by Dasgupta and Papadimitriou
- “Algorithm Design”, by Kleinberg and Tardos

Evaluation:

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Topics:

1. Basic techniques
   a. Correctness of algorithms
   b. Analysis of running time
2. Self reduction techniques
   a. Divide/decrease and conquer
   b. Dynamic programming
   c. Greedy
   d. Backtracking
   e. Branch and bound
3. Transformation techniques
   a. Lower bound of comparison-based sorting
   b. Linear programming
   c. NP-hardness

Exams: there will be 4 exams (including the final exam, which will be on Thursday, May 5 at 10:30AM)

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student’s own work. The plagiarism is incurred when any part of anybody else’s work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor’s discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.people.memphis.edu/~jaffairs/