COMP7712: Algorithms and Problem Solving – Spring 2026
Instructor: Dr. Vinhthuy Phan **Contact:** vphan@memphis.edu

Prerequisites: Knowledge of programming; a basic course on algorithms; mathematical maturity.

Coverage: Fundamental algorithm design techniques such as recursion, greedy algorithms and dynamic programming. Basics of graph algorithms, network flows, optimization algorithms. NP-completeness.

Textbooks: "Algorithms", by Dasgupta, Papadimitriou & Vazirani. Published by McGraw-Hill, 2006.

How your grades are determined:

Attendance	10%
Participation	10%
Assignments	30%
Midterm exam	25%
Final exam	25%

Note: these percentages may be adjusted during the semester

Tentatively, the materials are organized into 4 modules:

1. Basic designs and analysis
2. Complexity calculations, program correctness
3. Divide and conquer & greedy design and analysis.
4. Dynamic programming design
5. Linear programming and NP completeness

Review the textbook to match the appropriate chapters for each module.

Lectures cover additional topics not found in the textbook. Therefore, attendance and participation are essential to your learning of the materials.

Plagiarism/Cheating Policy:

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/