

CDA4150 Computer Architecture
General Information
Fall 2009

Instructor: David Whalley
Office: 259 Love
Phone: 644-3506
Office Hours: 9:30am-11:00am Tuesday and Thursday

TA: Yue Li
Office: 170 Love
E-mail: yli@cs.fsu.edu

Prerequisites: CDA3101 (Computer Organization), MAD3105 (Discrete Math II)

Text: J. Hennessy and D. Patterson. *Computer Architecture A Quantitative Approach. Fourth Edition.*

Class Homepage: The class home page is at <http://www.cs.fsu.edu/~whalley/cda4150.html>. The page will contain a variety of information, which will include the syllabus, schedule, slides, and assignments.

Course Objectives: A student who has completed this course with a passing grade should be able to:

- (1) Calculate architecture performance measures.
- (2) Apply basic code transformations by hand to increase instruction-level parallelism.
- (3) Detect dependences and hazards for a sequence of instructions.
- (4) Determine the cycle when each instruction will go through each stage of an out-of-order pipeline.
- (5) Determine for a sequence of instruction references whether or not each instruction will hit in a branch target buffer.
- (6) Determine for a sequence of branches the prediction that will be made in a branch prediction buffer.
- (7) For various memory hierarchy optimizations, list the likely impact on miss rate, miss penalty, and hit time for cache performance.

Slides: There is a lot of material to cover in this class. Lecturing from slides will allow me to cover the material at a more rapid pace. I will be presenting slides that I have developed and slides of figures and tables from the text. Pdf for the slides I have developed for the class will be made available from the class homepage prior to their presentation.

Assignments: You will be assigned at least two programming projects and some other exercises. The two programming projects will together require about 1500 lines of code. These projects are to be accomplished individually by each student. There will also be papers on computer architecture that you will be assigned to read.

Grading: There will be three exams (60% of total) and various projects (40% of total). Keep all graded material to provide evidence of grades. A final comprehensive exam may be given in place of the third exam.