

# CSC 7080 – Computer Architecture

## Spring 2009, Syllabus

Department of Computer Science, Louisiana State University

**Class Time & Location:** Tuesdays 5:10-8:00pm, 218 Tureaud Hall

**Instructor:** Prof. Konstantin Busch  
*Office:* 286 Coates Hall  
*Phone:* 578-7510  
*Email:* busch [at] csc lsu edu

**Office Hours:** Monday 1:00-2:00pm, Thursday 1:00-2:00pm

**Textbook:** (required) *Computer Architecture, A Quantitative Approach*, John L. Hennessy and David A. Patterson, ISBN-13: 978-0-12-370490-0; ISBN-10: 0-12-370490-1.

### Prerequisites:

It is desirable to have a basic background in the topics: computer organization; pipeline design; memory hierarchies; digital design.

### Course Goals:

The course goal is to cover fundamental ideas and approaches in modern computer architecture. To teach issues involved in CPU design and memory hierarchies. To introduce basic concepts such as pipeline design, instruction level parallelism, and cache coherence protocols.

### Topics Covered:

Introduction to fundamentals of Computer Design (Chapter 1)  
Pipelining (Appendix A)  
Instruction Set Principles (Appendix B)  
Instruction Level Parallelism (Chapter 2)  
Limits of Instruction Level Parallelism (Chapter 3)  
Multiprocessors and Thread-Level Parallelism (Chapter 4)  
Memory Hierarchy Review (Appendix C)  
Memory Hierarchy Design (Chapter 5)  
Storage Systems (Chapter 6)

### Grading:

- Homework assignments: 20%  
There will be about 4 homework assignments
- Computer project: 20%

There will be a software project where you will simulate a pipelined computer architecture

- Paper presentation: 10%  
Each student will give a 20-minute presentation in class of a paper selected from conference proceedings or journals on a topic related to computer architecture.
- Midterm Exam: 25%
- Final Exam: 25%

Grade scale:

A = 100-90 %

B = 89-80 %

C = 79-70 %

D = 69-60 %

(Note that a D grade is not a passing grade for graduate students.)

### **Academic Integrity:**

No cheating will be tolerated. LSU Honor Code governs all work in this course. Unless indicated otherwise, all written work handed in must be done only by the individual whose name appears on the document. Regarding student cooperation on the homework assignments, you may discuss with other students the homework problems; however, what you submit must be your own solutions. Your instructor is authorized to give you help on all work (help will not be given if it provides unfair advantage). Any deviation from these guidelines will result to severe measures such as lowering the grade or failing the course, and the appropriate authorities on campus will be notified.