

CS4290/CS 6290 High-Performance Computer Architecture

School of Computer Science
Georgia Institute of Technology

Instructor: Prof. Hyesoon Kim

Class time: 3:00 – 4:30 Tuesday and Thursday

Class room: KACB 1443

Office: KACB 2344

Email: hyesoon@cc.gatech.edu

Office hours: 10:00 AM-11:00 AM Wednesday and Thursday

TA: Aemen Lodhi (alodhi3@mail.gatech.edu)

Course Description

This is a graduate-level course on how the computer works. In this course, we will review fundamental structures in modern microprocessor and computer system architecture design. We will cover computer organization, instruction set design, memory system design, pipelining, cache coherence protocols, and other techniques to explore instruction level parallelisms. We will also cover system level topics such as storage subsystems. We will also have case studies as to how modern microprocessors are designed.

Text book:

Computer Architecture: A Quantitative Approach, **4th Edition** by John Hennessy and David Patterson.

Course Policies

Grading

10% Homework (4 homework)

25% Programming assignments (3 programming assignments)

30% Midterm

35% Final Exam

Homework and programming assignments

I encourage you to study in groups. If you are part of a study group, you will need to turn in only one copy of a solution to homework. The front page should contain the names of all the students of the study group who have contributed the solution. Each student will receive the same grade for the problem set.

However, **examinations and your work on all programming assignments must be your own individual work.** Collaboration with other students or other persons is prohibited. Submitting any work other than your own is a violating of the Academic Honor Code. If you are not sure what you can discuss or not, please contact the instructor.

Exams

Absolutely no collaboration at all. Copying or receiving any other information from another person or their exam, with or without their consent, is unethical and unacceptable. Cheating is a direct violation of the GT Academic Honor Code and will be dealt with accordingly.

Term Project

3rd programming assignment can be substituted with a term project. Individual or up to 2 people can do a term project. The students who wish to do a term project should submit their proposals by Oct. 2 (The team should have a mentor. The mentor could be a professor or a Ph.D student.) The schedule for the term project will be announced later.

Class Policies

Late Policy: All homeworks/programming assignments are due on the day specified by the problem set and posted online. No late homeworks will be accepted.

Student honor code: Zero tolerance toward a violation of the student honor code. Any misbehavior will be reported to Dean of Students directly.

Regrades: TA will grade homework assignments. Regrades are obtained by submitting a written explanation to the instructor within 48 hours of when the work was returned in class. Regrades will only be discussed *after* submitting the work in this manner. In order for a test to be re-graded, you must *neatly* state in writing the reason that you would like your test to be re-graded. If a test is submitted for a re-grade, I have the right to re-grade the entire test – so keep it mind that it is possible to lose additional points. Therefore, it is strongly recommended that you do not ask for a re-grade unless you have substantial reason to believe that I made a mistake when originally grading the test.

Office Hours: Please respect the office hours of the instructor and TA by planning ahead. Other times are possible by appointments.

Newsgroup: It is your responsibility to check the newsgroup. Discussions in the newsgroup are also considered as class discussions.