CSCI 360 Computer Architecture III Syllabus

Hours: Tuesday and Friday 11:10 – 12:25 PM, Room: ThomHunter 502

Instructor: Xiaojie Zhang, Email: xz326@hunter.cuny.edu, Office hours: HN 1000C, by appointment

Prerequisite: CSCI 160, CSCI 260, and MATH 155, all with a grade of C or better.

Textbook: *David Patterson and John Hennessy, Computer Organization & Design – The Hardware/Software Interface, 5th Edition, ISBN 978-0-12-407726-3.*

CSCI 360 course is a continuation of CSCI 260. Whereas 260 should have covered the text through pipelining, this course will cover the remaining and several additional topics in modern computer architecture.

Lectures:
- PART1: information storage and translation, from source code to machine language (**x86-64** Assembly Language Programming)
- PART2: introduction to memory hierarchy, includes Caching, Virtual memory, and I/O basics
- PART3: Parallelism, Amdahl's law and Flynn's taxonomy
- PART4: introduction to basic Cloud

Attendance: Attending all the lectures will be very important for the students to develop the concepts and skills, and to be able to perform well in the exams, assignments, and quizzes. A **quiz** will be held during each class time, only contain 1-2 questions. It is an **open book** quiz. You can discuss with each other. Open to internet.

Homework: No Homework.

Project: There will have three course projects and project presentations. Open to all Object-oriented programming languages like java, C++, python, c#. Some web script languages and HTML are also feasible.
- (**personal project**) *Write a program to translate the* ***source code*** *into* ***assembly language.*** **Deadline:** September 27
- (**group project**) *Translate* ***assembly language*** *into* ***machine code*** *and develop a* ***Computer Architecture*** *(memory hierarchy) and simulate how* ***Arithmetic Logic Unit (ALU)*** *works.* **Deadline:** TBA, *2-3 students*
  (**group project**) *Simulate a basic Cloud based environment, more details will be discussed during the course.* **Deadline:** TBA, *(2-3 students)*

Tests: Most test questions will be conceptual and will require a good understanding of the material rather than rote memorization. Thus, you should concentrate on understanding the concepts and knowing how to apply the material instead of memorizing the textbook.
- TEST 1 (PART1): September 27
- TEST 2 (PART2), TEST3 (PART3 and PART4): TBA

Grading:

Attendance/Quizzes: 30%   Project: 10% + 15% + 15%   Tests: 30%

Abuse of Trust: Duplicate written in collaboration with others is **NOT** acceptable. Although it is permissible to discuss with others, these discussions should be of a general nature. All work at a detailed level must be done on your own. Students submitting the same or similar solutions or a student who submits a lab downloaded off the Internet (or obtained from other sources including a compiler) will be considered as having cheated. Any evidence of cheating, copying or collusion, plagiarism, etc., will be graded as zero for all students involved and an automatic F for the course along with sanctions in accordance with Hunter College procedure. The official college statement is:

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212-772-4857)/TTY (212-650-3230).

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.
> *a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).*
> *b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.*

CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf

This course partially meets the department's learning goals 1A, 1B, 1D, 3A, and 3C.