

CSE 341: COMPUTER ORGANIZATION

SYLLABUS (SPRING 2020)

1. Instructor

Lu Su

Associate Professor, Department of Computer Science and Engineering

Email: lusu@buffalo.edu

Office Hours: Tuesday/Thursday 3:20PM ~ 4:20PM

Office Location: Davis 321

2. Books

- Textbook: David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, 5th edition, Elsevier, Inc., 2014.

3. Background Requirements

This class will need a background in digital logic and systems.

Prerequisites: CSE 220 or CSE 241 or EE 178

4. Description

This course is a study of basic hardware and software issues of computer organization. Topics include computer abstractions and technology, performance evaluation, instruction set architecture, arithmetic logic unit design, advanced computer arithmetic, datapath and control unit design, pipelining, memory hierarchy, input-output.

The following topics would be covered:

- Computer abstractions and technology
- Instructions: language of the computer
- Arithmetic for computers
- The processor
- Memory hierarchy
- Caches
- Virtual memory
- Parallel processors
- SISD, MIMD, SIMD, SPMD, and vector
- GPUs

5. Grading Policy

- Homework: 0%
- Quizzes: 20% (two highest scores out of four randomly provided quizzes, 10% for each)
- In-class Midterm: 20% (5% bonus)
- Final: 35% (5% bonus)
- Project: 25%

7. Academic Integrity

All students shall adhere to and be compliant with the Undergraduate Academic Integrity Policy of the University at Buffalo:

<https://catalog.buffalo.edu/policies/integrity.html>

8. Accessibility Resources

For students who may have special needs, please contact UB's Accessibility Resources Office in order to receive accommodation for physical and learning disabilities.

<http://www.buffalo.edu/studentlife/who-we-are/departments/accessibility.html>