# ECE 394, Introduction to Computer Architecture, Fall, 2024

(Computer Organization and Design: The Hardware Software Interface)

## Reading Assignments

| Week | Note | Important reading assignments |
|---|---|---|
| 1 | | zyBook Ch. 1.1: Introduction (Introduction to Computers)<br>Ch. 1.2 – Ch. 1.4:<br>Ch. 1.5: Technologies for building processors and memory |
| 2 | HW-1 | zyBook Ch. 1.6: Performance<br>Ch. 1.7 – Ch. 1.8:<br>Ch. 1.9: Intel Core i7 |
| 3 | HW-2 | [Handout 2] Introduction to Structured Computer Organization<br>1.1.1: Languages, Levels, and Virtual Machines<br>1.1.2: Contemporary Multilevel Machines<br>1.1.3 Evolution of Multilevel Machines |
| 4 | Quiz-1 | [Handout 2] Introduction to Structured Computer Organization<br>1.2: Milestones in Computer Architecture<br>1.3: The Computer Zoo<br>1.4: Example Computer Families |
| 5 | Exam-1 | zyBook Ch. 3.1: Introduction (The Processor)<br>Ch. 3.2: Building a datapath |
| 6 | Update | zyBook Ch. 3.3: An overview of pipelining<br>Ch. 3.4: Pipelined datapath and control<br>Ch. 3.5: Data hazards: Forwarding versus stalling |

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|---|---|---|
| | | Ch. 3.6: Control hazards |
| 7 | HW-3 | zyBook Ch. 3.7: Parallelism via instructions<br>Ch. 3.8: Instruction-level parallelism |
| 8 | Mid-Pt<br>HW-4 | zyBook Ch. 4.1: Introduction (Memory Hierarchy) |
| 9 | Fall-Brk<br>Quiz-2 | zyBook Ch. 4.2: Memory technologies<br>Ch. 4.3: The basics of caches<br>Ch. 4.4: Virtual machines |
| 10 | Exam-2 | zyBook Ch. 4.5: Virtual memory |
| 11 | Update | zyBook Ch. 5.1: Introduction (Parallel Processors)<br>Ch. 5.2: The difficulty of creating parallel processing programs |
| 12 | HW-5 | zyBook Ch. 5.3: SISD, MIMD, SIMD, SPMD, and vector |
| 13 | HW-6 | zyBook Ch. 5.5: Multicore and other shared memory multiprocessors<br>Ch. 5.6: Introduction to graphics processing units |
| 14 | Quiz-3 | None |
| 15 | Thx-Brk | None \| All Readings Must Be Completed by Week 15! |
| 16 | Exam-3 | None |