

EE 4720: Computer Architecture

Syllabus

Where/When/Web

Room 1720 Business Education Complex
Monday Wednesday Friday 9:30–10:20 **Spring 2024**
<https://www.ece.lsu.edu/ee4720/>

Who

David M. Koppelman
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Tentative Office Hours: Monday–Friday: 14:00–15:00.

Topics

Instruction-Set Architecture and Microarchitecture

Architecture and microarchitecture.
ISA Families: RISC, CISC, VLIW.
Instruction set design and examples.

Implementation

Review of datapath components and basic pipelining techniques.
Basic scheduling techniques and optimization.
Get the most out of your datapath: dynamic scheduling (out-of-order execution).
Branch and target prediction, and of course misprediction recovery.
Provide more datapath: Superscalar, vector instructions, VLIW, and deeper pipelines.
Parallel organizations: cluster, multi-core, many-core.

Memory system implementation.

Caches.
Virtual memory.

Text

Optional: “Computer architecture, a quantitative approach,” John L. Hennessy & David A. Patterson, or
“Computer organization & design,” David A. Patterson & John L. Hennessy.

Grading

40% Midterm Exam* • 40% Final Exam • 20% Homework

* When computing the course average the midterm exam grade may be replaced with the final exam grade if it is higher. *Late-homework penalty*: 10% earned grade per day late. *Disorganized-homework penalty*: 10% maximum grade. (For example, will be applied to multiple E-mailed image files. Avoid penalty by combining images into a single PDF file.) *Missed-midterm-exam policy*: at instructor’s discretion either a makeup exam, use final exam grade for midterm grade (*i.e.*, 80% final exam weight), or use zero for midterm grade. *Daily attendance*: optional, however students are responsible for all material, instructions, and notices presented in class.

A.D.A.

Louisiana State University is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Any student with a documented disability needing academic adjustments is requested to speak with Disability Services and the instructor, as early in the semester as possible. All discussions will remain confidential. Please contact Disability Services in 115 Johnston Hall, 225-578-5919 or at <http://www.lsu.edu/disability>.

