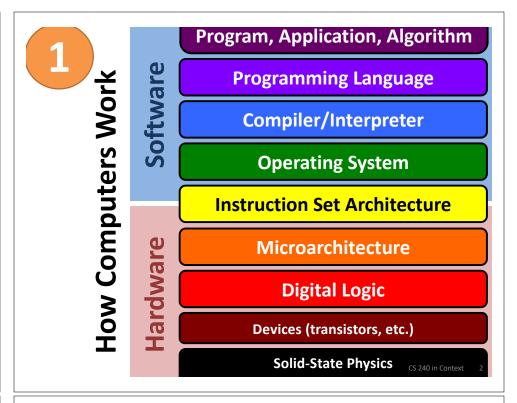




CS 240 in context

https://cs.wellesley.edu/~cs240/

CS 240 in Context 1



Foundations Research **Everything** CS 343: **CS 301: Compilers Distributed Computing** and Runtime Systems CS 341: CS 342: **Operating Systems Computer Security** CS 203: Computer Music CS 242: **Computer Networks** CS 3??: **Computer Architecture** CS 251: CS 304: CS 240: **Programming Databases with Computer Systems/Organization** Languages Web Interfaces

Skills for Thinking and Programming

Few of you will build new HW, OS, compiler, but...

- 1. Effective programmers and computer scientists understand their tools and systems.
- 2. The skills and ideas you learn here apply everywhere.

Reason about computational models, translation.

Debug for correctness and performance (with tools to help).

Assess costs and limits of representations.

"Figure it out" via documentation, experiments, critical thinking.

Remember low-level implications of high-level choices.



Big Ideas in CS, Systems, and beyond

Abstraction

Do not start every project with transistors.

Abstraction is beautiful and empowering,
but real abstractions have leaks and wrinkles.

Translation

Between layers of abstraction. Structured computation.

<u>Performance</u>

Memory: clever, imperfect abstraction. Tiny code changes, huge impact.

Representation

No representation without taxation.

Representations have costs.

Security + Reliability

Trickiest exploits & errors involve multiple layers, even hardware!

These things matter more every day.

) in Context