

CPSC 614: Graduate Computer Architecture
Prof. Lawrence Rauchwerger

Introduction

Based on Lectures by:
Prof. David E Culler
Prof. David Patterson
UC Berkeley

Outline

- **Why Take CPSC 614?**
- **Fundamental Abstractions & Concepts**
- **Instruction Set Architecture & Organization**
- **Administrivia**
- **Pipelined Instruction Processing**
- **Performance**
- **The Memory Abstraction**
- **Summary**

Why take CPSC 614?

- **To design the next great instruction set?...well...**
 - instruction set architecture has largely converged
 - especially in the desktop / server / laptop space
 - dictated by powerful market forces
- **Tremendous organizational innovation relative to established ISA abstractions**
- **Many New instruction sets or equivalent**
 - embedded space, controllers, specialized devices, ...
- **Design, analysis, implementation concepts vital to all aspects of EE & CS**
 - systems, PL, theory, circuit design, VLSI, comm.
- **Equip you with an intellectual toolbox for dealing with a host of systems design challenges**