

CPE 315 Fall 2014

	Information	Comment
Instructor	John Seng Email: jseng@calpoly.edu Office: 14-231 Phone: (805) 756-5536	Section 1: MWF 192-242 (12pm), 14-302 (1pm) Section 3: MWF 14-302 (2pm), 14-302 (3pm) Office hours: Mon 9a-11a, Tues 9a-11a, Fri 8a-9a
Course Objectives	<ul style="list-style-type: none"> • To understand and apply the principles of computer organization, architecture, and hardware. • To obtain a working knowledge of the MIPS instruction set architecture and CPU design. • To understand how architectural design decisions affect program performance. 	
Prerequisites	CPE 103 and one of the following: CPE 229, CSC 225, or CPE 233	In this class we will be using assembly programming, binary number representation, and digital logic extensively. It is important that you have a good background in these areas.
Textbook	Patterson and Hennessy, <i>Computer Organization and Design (4th edition - revised)</i> , Morgan Kaufmann, 2011	
Homework	<ul style="list-style-type: none"> • Problems from the textbook • Typically due one week after assigned (at beginning of lecture) • 15% off for first day late, no credit after 1 day late (weekend days count) • One problem will be graded on each assignment for correctness. • Other problems graded for completeness • Readings assigned on PolyLearn and in class 	The midterm and final exam will draw heavily from the homework material and the material covered in class. You must always show your work; the homework is the best practice for exams. You may work on homework in groups, but make sure that you try to solve the problem yourself before getting help from others in the group.
Labs	<ul style="list-style-type: none"> • Labs may be done with a partner. If you choose to work alone, you will not be guaranteed a computer during lab. • You may change partner during quarter • Each lab assignment will specify what needs to be turned in (e.g. program, schematic, writeup) • 15% off for first day late, no credit after 1 day late (weekends count as days) 	<p>You are encouraged to study together, discuss lectures, lab concepts and computer architecture issues. List the names of anyone you talked to on lab assignments. But, DO NOT:</p> <ul style="list-style-type: none"> • turn in duplicate work (even one line of code or comment) • copy work (even one line) from another student's assignment or published source (without credit) • lend another student your assignment • write part (even one line) of another student's assignment. • transfer any of your files to another student. <p>Any student turning in plagiarized code will receive an F in the course.</p>
Grading	<p>Course grades will be based on homework, lab assignments, and tests. Grades will be curved based on final overall grades. The following will be the breakdown of the grading:</p> <p>20% - Homework 25% - Labs 25% - Midterm 30% - Final exam</p>	<ul style="list-style-type: none"> • All exams will be closed book • I will tell you if you are allowed to use a calculator for an exam. • Midterm date to be announced • Final exam on date/time in class schedule
Course Topics	<ul style="list-style-type: none"> • Number representation • MIPS instruction set • ALU, multiplication, FP • CPU structure (fetch, branch, ALU, memory) • Performance evaluation • Exceptions • Pipelining • Data dependencies, Control Hazards • Superscalar • Caches • Virtual Memory, Multiprocessors • Multicore CPUs 	