

Course Schedule - CS270 Spring 2017

Weeks indicated below are approximate.

(Note: the readings refer to Patterson and Hennessy, and are rather dense. Read them more than once.

Supplemental course notes are only available for the software part of the course.)

Topic no.	Week	Notes (Greg's use)	Topics	Assignments
1.	1 M1/23	<i>Policies</i> <i>Overview</i> <i>Evolution</i> <i>Memory</i> <i>Chips</i> <i>Performance</i> <i>Numberrep</i>	Introduction Class Policies Machine history Introductory Material from text: Performance measuring(read) Chip manufacture Number Representation ones and twos complement addition and subtraction	P&H: Chapter 1 (dont worry about performance calcs in 1.6) Online Notes (topic 1) Handouts: Syllabus (PDF version), PolicyStatement , HowThisCourseWorks AssignmentGuidelines First Day Lab Log onto hills and linux for next week. Student Linux Account Information
2.	2 M1/30	<i>Basics</i> <i>Linux Basics</i> <i>Simple</i> <i>Machine1</i>	Machine basics CPU function and parts Register transfer notation Linux Basics Introduction to Simple Machine	P&H: Sec 2.4, 3.1-3.2. read 3.3 for background Online Notes (topic 2) . Also read Online notes topic 3 section 1 Handouts: SimpleMachine SimpleMachineDatapaths Exercises-Intro (to be done in Lab) Exercises-NumberRepresentation transfer nr before next class Asmt 1 handed out (work on Part 1)
3.	3 M2/6	<i>Simple</i> <i>Machine2</i>	The Simple Machine programming and simulation	Online Notes (topic 3) Lab-SimpleMachine Exercises-SimpleMachine transfer addloop before next class Asmt 1
Use these links to get the Mars simulator ; exception handler and the MIPS Green Sheet				
4.	4 M2/13	<i>mipsbasics</i> <i>mars</i> <i>logical</i>	MIPS instruction format Load-store instructions Array indexing the MARS simulator Introduction to syscalls bit operators using main instead of __start Instruction encoding / decoding	Online Notes (topic 4) P&H: Sec 2.1-2.6,A.9,A.10(first pages) Exercises-IntroMIPS transfer index.s before next class Lab-Bitops (important for Asmt 1) Page 1-3 of CodingInAssembler
Holiday Mon Feb 20 - President's Day - No class				

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5.	5 M2/27	<i>decisions proc-intro dataareas</i>	MIPS instructions for decisions. Translation of if-, switch- and loop statements to assembler --- end of material for Quiz 1 --- More instruction encoding and decoding Introduction to Procedures data areas	<u>Asmt 1 due (all parts)</u> P&H: Sec 2.7, 2.10 <u>Online Notes (topic 5)</u> <u>Lab-Decisions</u> <u>Exercises-ControlConstructs</u> <i>transfer substitute.s before next class</i> Suggested: read ahead: <u>Online Notes (topic 6) and Asmt 2</u>
6.	6 M3/6	<i>chars proc2</i>	character data Procedures and the calling convention	<u>Online Notes (topic 6)</u> <i>suggested: read ahead on topic 7</i> <u>Exercises-Procedures</u> (Part One) <i>transfer substitute1.s before next class</i> <u>Asmt 2</u> Quiz 1 thru topic 5 (partial)
7.	7 M3/13	<i>proc2</i>	Procedures and the calling convention	P&H: Sec 2.8-2.9; Sec A.6 (lightly) <u>Online Notes (topic 7 - READ THIS TOPIC SEVERAL TIMES)</u> <u>Exercises-Procedures</u> (Part Two) <i>transfer strdup.s before next class</i> <u>SupportFunctions</u> <u>Lab-Procedures</u> <u>CodingInAssembler</u>
8.	8 M3/20		More procedures practice Complex Pointers arrays of pointers jump tables function pointers objects	<u>Lab-Procedures2</u> <u>Asmt 3 (extra-credit, but highly recommended. Due Week 11.)</u> <u>Asmt 2 is due after Spring Break</u>
Holiday Monday March 27 - Spring Break. Work on Assignments Two and Three				
9.	9 M4/3	<i>pointers virtmem</i>	Finish Pointers --- end of material for Quiz 2 --- Exceptions Virtual Memory The Compilation system (time-permitting)	P&H: Sec 2.14 P&H: sec 5.7 up to p. 440 (overview) <u>Online Notes (topic 8)</u> <u>Asmt 2 due for extra credit</u> <u>Exercises-Pointers</u> Nothing to transfer for next week: <i>prepare for the quiz</i> <u>Lab-Pointers</u>
10.	10 M4/10	<i>cache combi (intro)</i>	Caches introduction to combinational logic transistors building gates from transistors logic gates combinational circuits	P&H 5.1-5.4 <u>Asmt 2 due</u> <u>CacheExample</u> <u>Lab-Caches (take home lab)</u> Quiz 2 through Pointers

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11.	11 M4/17	<i>combi</i> <i>simple</i>	Combinational Logic I boolean algebra simplifying combinational logic	P&H: Sec B.1-B.2 Exercises-CombinationalLogic1 <i>before next class, transfer a plain text file named comb1 with solutions for problems 8 and 10 (B.4 and B.6) for this exercise set.</i> Asmt 3 due Asmt 4 Lab-CombinationalLogic Handout: KarnaughMaps2x2, 2x3
	12 M4/24	<i>decode</i> <i>oc</i> <i>7seg</i> <i>ALU</i>	Combinational logic II decoders, multiplexors, PLAs 7-segment display The Arithmetic Logic Unit integer addition, subtraction ALU design and operation	P&H: B.3, B.5 (up to B-35) P&H: Read B.6 as overview Online Notes (topic 12) Exercises-CombinationalLogic2 <i>before next class, transfer a plain text file comb2 with the NAND equations for prob 9 and the minimized function for prob 16.</i> Lab-CombinationalLogic2
12.	13 M5/1	<i>clocks</i> <i>me</i> <i>fs</i>	Sequential Logic clocks, memory elements counters, state tables Introduction to finite state machines	P&H: B.7, B.8 (ignore verilog),B.9 (SRAMS only). Start on B.10 Asmt 4 due Exercises-SequentialLogic <i>hand in the solution to problem 10 (on paper) for next class</i> Asmt 5 (due at review session) <i>There is no reading quiz this week.</i> Lab-SequentialLogic1 Sample Quiz 3
13.	14 M5/8	<i>fs</i> <i>fp</i>	Sequential Logic Finite state machines Floating-Point	P&H: Sec B.10 (again, carefully) B.11 (overview) P&H: 3.5 (addition only) Exercises-SequentialLogic <i>hand in problem 14 (on paper) at review session. Counts double.</i> Exercises-FloatingPoint P&H: 3.5 (to p.202) Last Reading Quiz due 5/8. Lab-SequentialLogic2
14.	15 M5/14		Review	Asmt 5 Due
15.	16		<i>Final Examination (comprehensive)</i> <i>Monday May 22 6-9pm L413</i>	