15-745: Optimizing Compilers, Spring 2015 Schedule

Table 1: 15-745, Spring 2015. *(Revised 3/25/15.)*

Class	Date	Day	Topic	Reading	Assignments
1	1/13	Tue	Overview of Optimizations	9.1	
2	1/14	Wed	Local Optimizations	8.4-8.5	
3	1/15	Thu	The LLVM Compiler: Getting Started	`llvm.org/docs`	#1 Out
4	1/20	Tue	Data Flow Analysis: Examples	9.2	
5	1/21	Wed	Data Flow Analysis: Theory	9.3	
6	1/22	Thu	The LLVM Compiler: Further Details	`llvm.org/docs`	
7	1/27	Tue	Common Subexpressions, Constant Folding	9.2.6, 9.4	
8	1/28	Wed	Intro to Static Single Assignment (SSA)	6.2.4	
9	1/29	Thu	SSA-Style Optimizations		#1 Due, #2 Out
10	2/2	Tue	Loop Invariant Code Motion	9.6	
11	2/4	Wed	Induction Variables, Strength Reduction	9.1.8	
12	2/5	Thu	Partial Redundancy Elimination	9.5-9.5.2	
14	2/10	Tue	Lazy Code Motion	9.5.3-9.5.6	
14	2/11	Wed	Region-Based Analysis	9.7	
15	2/12	Thu	Register Allocation: Coloring & Spilling	8.8	#2 Due, #3 Out
16	2/17	Tue	Register Allocation: Coalescing		
17	2/18	Wed	Intro to Instruction Scheduling	10.1-10.2	
18	2/19	Thu	List Scheduling, Global Scheduling	10.3-10.4	
19	2/24	Tue	Software Pipelining	10.5	
20	2/25	Wed	Pointer Analysis	12.4, 12.6-12.7	
21	2/26	Thu	Dynamic Code Optimization		
22	3/3	Tue	*Recent Research on Optimization I*	*handouts*	
23	3/4	Wed	*Recent Research on Optimization II*	*handouts*	
24	3/5	Thu	*Recent Research on Optimization III*	*handouts*	#3 Due
			Spring Break		
	3/17	Tue	*Meetings to discuss Project Proposal ideas.*		
25	3/18	Wed	Memory Hierarchy Optimizations	12.1.4-12.1.5, 12.2	
26	3/19	Thu	Prefetching Arrays	12.3-12.5, 12.12.4	Project Proposal
27	3/24	Tue	Prefetching Pointer-Based Structures		
28	3/25	Wed	Array Dependence Analysis	12.1.1-3, 12.6-7	
29	3/26	Thu	Thread-Level Speculation		
	4/9	Thu	**Exam**		
	4/16	Thu			Project Milestone
	4/29	Wed			Project Due
	4/30	Thu	**Project Poster Session**		