

15-745: Optimizing Compilers, Spring 2014 Schedule

Table 1: 15-745, Spring 2014. (*Revised 1/28/14.*)

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