

15-745: Optimizing Compilers, Spring 2013 Schedule

Table 1: 15-745, Spring 2013.

Class	Date	Day	Topic	Reading	Assignments
1	1/15	Tue	Overview of Optimizations	9.1	
2	1/16	Wed	Local Optimizations	8.4-8.5	
3	1/17	Thu	The LLVM Compiler: Getting Started	llvm.org/docs	#1 Out
4	1/22	Tue	Data Flow Analysis: Examples	9.2	
5	1/23	Wed	Data Flow Analysis: Theory	9.3	
6	1/24	Thu	The LLVM Compiler: Further Details	llvm.org/docs	
7	1/29	Tue	Common Subexpressions, Constant Folding	9.2.6, 9.4	
8	1/30	Wed	Loop Invariant Code Motion	9.6	
9	1/31	Thu	Induction Variables, Strength Reduction	9.1.8	#1 Due, #2 Out
10	2/5	Tue	Partial Redundancy Elimination	9.5-9.5.2	
11	2/6	Wed	Lazy Code Motion	9.5.3-9.5.6	
12	2/7	Thu	Region-Based Analysis	9.7	
13	2/12	Tue	Intro to Static Single Assignment (SSA)	6.2.4	
14	2/13	Wed	SSA-Style Optimizations		
15	2/14	Thu	Register Allocation: Coloring & Spilling	8.8	#2 Due, #3 Out
16	2/19	Tue	Register Allocation: Coalescing		
17	2/20	Wed	Intro to Instruction Scheduling	10.1-10.2	
18	2/21	Thu	List Scheduling, Global Scheduling	10.3-10.4	
19	2/26	Tue	Software Pipelining	10.5	
20	2/27	Wed	Pointer Analysis	12.4, 12.6-12.7	
21	2/28	Thu	Dynamic Code Optimization		
22	3/5	Tue	<i>Recent Research on Optimization I</i>	<i>handouts</i>	
23	3/6	Wed	<i>Recent Research on Optimization II</i>	<i>handouts</i>	
24	3/7	Thu	<i>Recent Research on Optimization III</i>	<i>handouts</i>	#3 Due
<i>Spring Break</i>					
	3/19	Tue	<i>Meetings to discuss Project Proposal ideas.</i>		
25	3/20	Wed	Memory Hierarchy Optimizations	12.1.4-12.1.5, 12.2	
26	3/21	Thu	Locality Analysis	12.3-12.5	Project Proposal
27	3/26	Tue	Prefetching	12.12.4	
28	3/27	Wed	Array Dependence Analysis	12.1.1-3, 12.6-7	
29	3/28	Thu	Thread-Level Speculation		
	4/4	Thu	Exam		
	4/18	Thu			Project Milestone
	5/1	Wed			Project Due
	5/2	Thu	Project Poster Session		