15-745: Optimizing Compilers,
Spring 2011 Schedule

Table 1: 15-745, Spring 2011. *(Revised 3/22/11.)*

Class	Date	Day	Topic	Reading	Assignments
1	1/11	Tue	Overview of Optimizations	9.1	
2	1/12	Wed	Local Optimizations	8.4-8.5	
3	1/13	Thu	The LLVM Compiler	`llvm.org/docs`	#1 Out
4	1/18	Tue	Data Flow Analysis: Examples	9.2	
5	1/19	Wed	Data Flow Analysis: Theory	9.3	
6	1/20	Thu	Common Subexpressions, Constant Folding	9.2.6, 9.4	
7	1/25	Tue	Loop Invariant Code Motion	9.6	
8	1/26	Wed	Induction Variables, Strength Reduction	9.1.8	
9	1/27	Thu	Partial Redundancy Elimination	9.5-9.5.2	#1 Due, #2 Out
10	2/1	Tue	Lazy Code Motion	9.5.3-9.5.6	
11	2/2	Wed	Region-Based Analysis	9.7	
12	2/3	Thu	Intro to Static Single Assignment (SSA)	6.2.4	
13	2/8	Tue	SSA-Style Optimizations		
14	2/9	Wed	Register Allocation: Coloring	8.8	
15	2/10	Thu	Register Allocation: Spilling		#2 Due, #3 Out
16	2/15	Tue	Intro to Instruction Scheduling	10.1-10.2	
17	2/16	Wed	List Scheduling, Global Scheduling	10.3-10.4	
18	2/17	Thu	Software Pipelining	10.5	
19	2/22	Tue	Memory Hierarchy Optimizations	11.1.4-11.1.5, 11.2	
20	2/23	Wed	Locality Analysis	11.3-11.5	
21	2/24	Thu	Prefetching	11.11.4	
22	3/1	Tue	*Recent Research on Optimization I*	*handouts*	
23	3/2	Wed	*Recent Research on Optimization II*	*handouts*	
24	3/3	Thu	*Recent Research on Optimization III*	*handouts*	#3 Due
			Spring Break		
	3/15	Tue	LLVM Review Session *(in preparation for projects)*		
25	3/16	Wed	Dynamic Code Optimization		
	3/17	Thu	*Meetings to discuss Project Proposal ideas.*		
	3/18	Fri	*No lecture (of course), but project proposals are due by 3pm.*		Project Proposal
26	3/22	Tue	Array Dependence Analysis	11.1.1-11.1.3, 11.6-11.7	
27	3/23	Wed	Pointer Analysis	12.4, 12.6-12.7	
28	3/24	Thu	Thread-Level Speculation		
	3/31	Thu	**Exam**		
	4/14	Thu			Project Milestone
	4/27	Wed			Project Due
	4/28	Thu	**Project Poster Session**		