

CSC 255/455 Schedule for Spring 2014 (updated April 2)

Week	Lecture	Date	Topic	Reading	Assignment
1	1	15-Jan	introduction		
2	2	20-Jan	MLK day, no class		
	3	22-Jan	redundancy removal	EAC Ch. 8	repository setup
3	4	27-Jan	value numbering, local	EAC Ch. 8	
	5	29-Jan	value numbering, superlocal	EAC Ch. 8	LVN due
4	6	3-Feb	data flow analysis, AVAIL	EAC Ch. 9.2,	GCC/LLVM
	7	5-Feb	data flow analysis, LIVE		(LIVE in class)
5	8	10-Feb	data flow properties	Kam/Ullman	
	9	12-Feb	def-use chains, dead-code elimination	AK Ch. 4.4	
6	10	17-Feb	(guests) data flow problems	Bacon+ 2004	val num due
	11	19-Feb	static single assignment	EAC Ch. 9.3, 10.3.2, 12.3	hw 1
7	12	24-Feb	static single assignment		
	13	26-Feb	PRE, ILP, register allocation	EAC Ch. 13.1-4	hw 1 due
8	14	3-Mar	mid-term exam (in class)		
	15	5-Mar	interprocedural, alias and point-to	AK Ch. 11.2.2	
9	16	17-Mar	CFL reachability, point-to	Reps paper	
	17	19-Mar	URCC intro and programming		urcc assigned
10	18	24-Mar	lambda calculus, binding, closure	lecture slides	
	19	26-Mar	call-by-value/call-by-name (lazy eval)	lecture slides	control flow due
11	20	31-Mar	call-by-name, recursion, CPS	lecture slides	
	21	2-Apr	introduction: high-level transformation	AK Ch. 1	local valnum due
12	22	7-Apr	dependence, auto vectorization	AK Ch. 2	
	23	9-Apr	loop interchange, scalar expansion, node splitting, unroll-and-jam	AK Ch. 5.2-5.5, 8.4 7.3	def-use due
13	24	14-Apr	(Lavaee) reuse distance, affinity theory		
	25	16-Apr	(Xiang) compiler support for concurrency		dead-code due
14	26	21-Apr	loop transformation, control dependence	AK Ch. 7.3	
	27	25-Apr	(Friday class) temporal logic, verification	lecture slides	
15	28	28-Apr	prefetching, auto-tuning, cache hints		
		30-Apr	review		lambda hw2 due
		6-May	final exam (10am to 12pm)		

EAC: Engineering a compiler, by Cooper and Torczon

AK: Optimizing compilers for modern architectures, by Allen and Kennedy