

CS533: Parallel Computer Architecture
Prof. Josep Torrellas
Spring 2026
Tentative Course Outline

1. Introduction to Architectures and Programming (2 lectures) 1/20 1/22
2. Scalable Cache Coherence (3 lectures) 1/27 1/29 2/3
3. Memory Consistency Models (2 lectures) 2/5 2/10
4. Prefetching (2 lectures) 2/12 2/17
5. Synchronization (2 lectures) 2/19 2/24
6. Multithreading (1 lecture) 2/26
7. Multiple Processors on a Chip (2 lectures) 3/3 3/5
8. Speculative Parallelization and Execution (2 lectures) 3/10 3/12
9. Processor and Memory Integration (2 lectures) 3/24 3/26
10. Reliability (3 lectures) 3/31 4/2 4/7
11. Interaction with Operating Systems and Databases (2 lectures) 4/9 4/14
12. Message-Passing Architectures (3 lectures) 4/16 4/21 4/23
13. Dataflow, Systolic, and Data-Parallel Architectures (2 lectures) 4/28 4/30
14. Other: Transactional Memory and Energy (1 lecture) 5/5

Schedule of homeworks:

1/20		
1/22		
1/27		
1/29	HW1 assigned	
2/3		
2/5		
2/10		Project proposals due
2/12		
2/17	HW2 assigned	HW1 due (cache coh + mem cons)
2/19		
2/24		
2/26		
3/3		
3/5		
3/10		
3/12		HW 2 due (pref + synch+ M + CMP)
SPRING BREAK		
3/24	HW3 assigned	
3/26		Midterm Progress Report in Class
3/31		
4/2		
4/7		
4/9	HW4 assigned	HW3 due (CMP + Spec + P/M + Rel)
4/14		
4/16		
4/21		
4/23		
4/28		
4/30		
5/5		HW4 due (Rel+OS+MS+data)
Later		Project Presentation + Final Report Due