Test 2 for Computer Architecture will be Thursday, Nov. 14 in class. The test will be open book and notes. Test 2 review topics are:

**Chapter 2:**
- Parallel program design: Foster’s methodology, Task vs. Data-parallel parallelism
- Sources of parallel overhead
- Examples: sum1DArray, matrix multiplication
- C programming: arrays, command-line arguments
- Parallel performance: speedup, efficiency, Amdahl’s law

**Chapter 4: Shared-Memory Programming with Pthreads**
- process vs. thread contrasts
- pthread commands: create, join,
- Pthread examples: sum1DArray, matrix-vector (textbook), your 2D SOR HW #6 program
- Critical sections: mutexes
- Producer-consumer synchronizations: condition variables and mutexes
- Barrier synchronization: implementation
- Read-Write locks: usage and implementation options
- Deadlock issues with pthreads
- Cache issues: cache coherence, false sharing, performance considerations w.r.t design
- Thread-safety issues of some C functions (static variables in shared memory)

**Chapter 6: Parallel Program Development**
- Pthread versions of n-body and TSP problems - focus more on the design choices made for the pthreads