

## Homework Assignment for Week 17

Assigned Jan 4, 2011.

1. Section 6.5: Problems 4(a,c), 9(a,c), 10, 11.

Remarks: For problem 4 and 9, read Example 3 on page 394 to find out how to obtain the permutation matrix  $P$ . Problem 10 is a demonstration of the application of  $LU$  decomposition other than solving a linear system.

2. The recursive implementation of  $LU$  factorization we introduced in class is now summarized in page 43 and 44 of Chap 06's slides. Verify that page 43 and page 44 are equivalent. Then verify that they are equivalent to Algorithm 6.4 with  $l_{ii} = 1$ .
3. Modify the algorithm on page 43 (or page 44) of Chap 06's slides to produce an  $LU$  factorization with unit upper triangular  $U$ . That is,  $u_{ii} = 1$ .