

The following problems, unless specifically noted, refer to the exercises in the book *Numerical Linear Algebra*, by Lloyd N. Trefethen and David Bau, III, SIAM 1997.

Homework 3

Reading: Lectures 6-8.

Problems: Exercises 6.1, 6.2, 6.4, 7.1.

One additional problem:

- A1. Implement the Algorithm 7.1 (Classical Gram-Schmidt) on page 51 and Algorithm 8.1 (Modified Gram-Schmidt) on page 58. Use them to produce the Figure 9.1 on page 66. The figure corresponds to the Experiment 2 described on page 65. Since the matrix A is randomly generated, you don't have to reproduce the "exact" figure but just the general trend. (This problem is to give you a hands-on experience of the numerical stability of the two algorithms.)