Dear students in Numerical Methods (NM),

On Feb, 7 we started on numerical solutions of systems of linear equations (chapter 2) in NR (Gaussian elimination and LU-decomposition). You then worked on an exercise about using the NR-code for LU-decomposition on an example.

On February, 14, we will go through Section 15.4 on Linear Least Squares problems (pp. 788-790) and discuss what is required for a matrix to be symmetric and positive definite (start of section 2.9 (notice that v must be nonzero in 2.9.1 p. 100). We will then discuss the Cholesky decomposition. We will skip the derivations of the expressions of the elements (Eqs. 2.9.4 and 2.9.5). Notice that in the C++ code on p. 101, there is a test for positive definiteness approximately at the middle of the page.

You will then work on implementing both LU decomposition and Cholesky decomposition for two real life Linear Least Squares problems.