Dear students in Numerical Methods (NM),

On **February, 5,** we will start on numerical solutions of systems of linear equations (chapter 2) in NR (Gaussian elimination and LU-decomposition). You will then work on an exercise about using the NR-code for LU-decomposition on an example.

VERY IMPORTANT: Please make sure that you have finished the programming exercise before February 12.

On **February, 12**, we will go through a widely used application for systems of linear equations, namely Linear Least Squares problems (Section 15.4 pp. 788-790) including 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.

BR, Henrik