

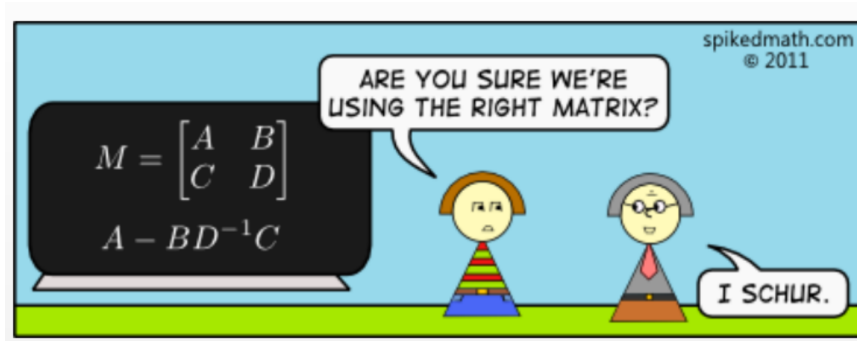
Fall 2015
Math Special Topics: Advanced Numerical Linear Algebra

MA 692-00B/792-00B. 1-3 Hours.

Prerequisites: MA 631, MA 660, or equivalent courses

Instructor: Carmeliza Navasca

Time & Place: TBA



This is a second course in Numerical Linear Algebra with more emphasis on algorithms and applications. Here's a non-exhaustive list of topics: Sparse Linear Systems, Discrete Inverse Problems (regularization methods, SVD, image processing), Function of Matrices, Multilinear Algebra/Tensor Decomposition, Machine Learning and High Performance Computing.

Homework problems may include computational problems. There will one final project. The grade breakdown is the following: 80% homework and 20% final project. No textbooks are required; notes, codes and slides will be uploaded in canvas.

References

- [1] T.A. Davis. Direct Methods for Sparse Linear Systems. SIAM, Philadelphia, 2006.
- [2] G.H. Golub and C.F. Van Loan. Matrix Computations. Johns Hopkins University Press, 4th Ed., 2012.
- [3] P.C. Hansen. Discrete Inverse Problems: Insight and Algorithms SIAM, Philadelphia, 2010.
- [4] N.J. Higham. Functions of Matrices: Theory and Computation SIAM, Philadelphia, 2008.