Instructor: Prof. Jens Lorenz

SMLC 394
lorenz@math.unm.edu
office hours: M 10-11:30, W 3:30-5

Time: TR 9:30 – 10:45
Place: Centennial Engineering Center 1028

Text: (recommended)

Basis for Grading: Homework

Note: Qualified students with disabilities needing appropriate academic adjustments should contact me as soon as possible to ensure your needs are met in a timely manner.

Note: In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered responsible employees by the Department of Education (see pg 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html
Syllabus (tentative)

1. Gaussian elimination and *LU* factorization
2. Conditioning of linear systems
3. Rectangular systems and the four fundamental subspaces of a matrix
4. Direct sums and orthogonal decomposition
5. Variational problems; Lagrange multipliers
6. Least squares
7. Singular value decomposition
8. Determinants
9. Eigenvalues and eigenvectors; Jordan normal form
10. Projectors and the resolvent
11. GMRES
12. Min-max theorems
13. Introduction to control theory