Syllabus for 550

Recommended textbooks:

Gilbert Strang, Linear Algebra and Learning from Data.

Charu Aggarwal, Linear Algebra and Optimization for Machine Learning.

The course will cover most of Parts I, II and some of Parts III and VI of Strang's book. The central topics are: Matrix Factorizations, Eigenvalues and Eigenvectors, Singular Value Decomposition, Compressed Sensing, Minimization, Gradient Descent Methods, and (time permitting) a lecture or two about Neural Networks. Aggarwal's book covers these same topics in a somewhat different fashion (than Strang) and with a slightly stronger view towards machine learning.