Fall 2019 QF2148
Linear Algebra

About the Instructor

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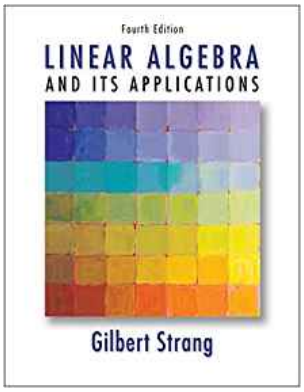
About this course

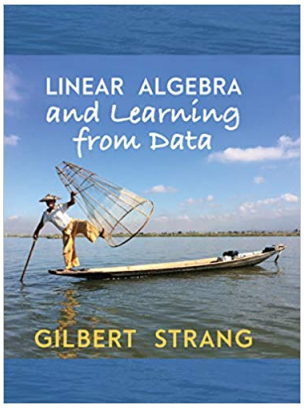
Prerequisite:
基礎向量、基礎程式

Objective: basic knowledge on linear algebra with its applications in finance and deep learning. Students can learn how to solve problems using software, ex Matlab (official use) and Python.

Textbook:
Linear Algebra and Its Applications, 4th Edition, 2006.
by Gilbert Strang
https://www.amazon.com/Linear-Algebra-Its-Applications-4th/dp/0030105676



Reference:
Linear Algebra and Learning from Data. 2019.
by Gilbert Strang
https://www.amazon.com/gp/product/0692196382/ref=dbs_a_def_rwt_bibl_vppi_i1



*there are many online resources provided by Professor Strang.

About the course content:

1 Matrices and Gaussian Elimination
2 Vector Spaces
3 Orthogonality
4 Determinants
5 Eigenvalues and Eigenvectors
6 Positive Definite Matrices
7 Probability and Statistics
8 Optimization
9 Deep Learning

Hand on experiences may include least squares estimation, mean-variance portfolio optimization

Grading policies: Quiz 10%, Homework Assignment 10%, midterm exam I and II: 20% each, final exam: 30%, Project: 10%. Extra credit: 5%