Resources

Help

Welcome to the Resources page. Here you will find helpful links to materials used in the course. This page will be updated as the course progresses so check back frequently.

Lecture Slides

Here you can find the weekly lecture slides shown in the video lectures. You will need a PDF viewer (such as Adobe Acrobat) to view them.

Week 1: Return Calculations

Week 2: Probability Review

Week 3: Probability Review Continued

Week 3: Matrix Review

Week 4: Time Series Concepts

Week 5: Descriptive Statistics

Week 6: Constant Expected Return Model

Week 7: Bootstrapping

Week 7: Hypothesis Testing

Week 8: Introduction to Portfolio Theory

Week 8: Portfolio Theory with Matrices

Week 9: Portfolio Theory with No Short Sales

Week 9: Statistical Analysis of Efficient Portfolios

Week 10: Portfolio Risk Budgeting

Week 10: Single Index Model

Week 10: Estimating the Single Index Model

Powerpoint Example Slides

These contain the powerpoint slides of the R examples each week.
R Probability Examples: R probability examples from Weeks 2 & 3

R Matrix Examples: R matrix examples from Week 3

R Time Series Examples: R time series examples from Week 4

R Descriptive Statistics Examples: R examples from Week 5

Descriptive Statistics Examples for Daily Data: Examples from Week 5 for daily data

R CER Model Examples: R Examples from Week 6

R Bootstrap Examples: R Examples from Week 7 on Bootstrapping

R Hypothesis Testing Examples: R Examples from Week 7 on Hypothesis Testing

Portfolio Theory Examples: R Examples from Week 8 on Portfolio Theory

Portfolio Theory with Matrices Examples: R Examples from Week 8 on Portfolio Theory with Matrices

R Portfolio Functions: Examples of Eric's portfolio functions for R

R Examples for Portfolio Functions with no short sales: R Examples from Week 9 on Portfolio Theory with no short sales

Statistical Analysis of Efficient Portfolios: R Examples from Week 9 on Statistical Analysis of Efficient Portfolios

Single Index Model Examples: R Examples from Week 10 on Single Index Model

R Tutorials and Guides

These are some helpful guides on how to program using R. They are useful for both new and experienced R programmers. They also require a PDF viewer to open.

Interactive introduction to R on the DataCamp platform. Excellent!

R Introduction: An introductory presentation on R. Very useful if you have never used R before. Includes information on how to install packages.

R Introduction scripts: The R scripts used in the R introduction presentation.

An Introduction to R: A more in depth guide on using R.

Return Calulations in R: A short presentation on how to perform return calculations using R. (Requires a PDF viewer)
Return Calculations in R script : The R script used in the Return Calculations in R presentation.

Excel

Return Calculations Examples : The Excel file used in the Excel Demos from Week 1.

probReview.xls: Excel probability examples

matrixReview.xlsx: Excel matrix examples

cerExample.csv: CER Model data

IntroPortfolioTheory.xls: Portfolio Theory Excel Example

lab8returns.csv: Data used in lab 8

3firmExample.xls: 3 Firm example from class singleIndexPrices.xls: Price data for single index model

lab9returns.csv: Data used in lab 9

R Scripts

econ424lab1.r: The R script you are to use in the Week 1 programming assignment.

lab3.r: The R script you are to use in the Week 3 programming assignment.

lab4.r: The R script you are to use in the Week 4 programming assignment.

lab5.r: The R script you are to use in the Week 5 programming assignment.

lab7.r: The R script you are to use in the Week 7 programming assignment.

lab8.r: The R script you are to use in the Week 8 programming assignment.

lab9.r: The R script you are to use in the Week 9 programming assignment.

probReview.r: R probability examples

matrixReview.r: R matrix examples

timeSeriesConcepts.r: R time series examples

descriptiveStatistics.r: R descriptive statistics examples

cerModelExamples.r: R CER Model examples

bootStrap.r: R Bootstrap examples

hypothesisTestingCER.r: R Hypothesis Testing examples

portfolio.r: R portfolio code

testport.r: Examples of using R functions for portfolio analysis with short sales

portfolio_noshorts.r: R functions for portfolio theory

portfolioTheoryNoShortSales.r: R functions for portfolio theory

rollingPortfolios.r: R code for statistical analysis of portfolios

singleIndex.r: R code for single index model

R packages

The following R packages will be used in class. We will learn more about these later in the course. Check out the R tutorial section above for more information on how to install them.

- zoo: Z's ordered observations
    - Vignette: zoo: An S3 Class and Methods for Indexed Totally Ordered Observations.
    - Vignette: zoo Quick Reference

- tseries: Time series analysis and computational finance
- TSA: Time series analysis.
- xts: Extensible time series
    - Vignette: xts: Extensible Time Series.
- mvtnorm: Multivariate normal and multivariate t distribution.
    - Vignette: Using mvtnorm.
- boot: Bootstrap R Functions.
- quadprog. Functions to solve Quadratic Programming Problems.
- fPortfolio. Rmetrics - Portfolio Selection and Optimization
- PerformanceAnalytics: Econometric tools for performance and risk analysis
    - Vignette: PerformanceAnalytics Charts and Tables Reference.

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