2014 Spring FIN 559 COMPUTATIONAL FINANCE

Lecturer Sergio Focardi

Number of Credits: 3

Instructor: Sergio Focardi

Prerequisite: Students in the MBA or MBX Program only

Time: Thursday 07:00-09:50 PM

Location: Social and behavioral Sciences Room N 106


plus course notes

References from the CFA Institute Research Foundation


Grading policy: four homework projects (40%) and final exam (60%)

Course description

This course gives a basic understanding of the mathematical and statistical methods used in quantitative finance. The course closely follows the CFA textbook.

Syllabus

➢ Short review of matrix algebra

➢ Descriptive statistics

➢ Theory of probability

➢ Statistics: sampling, estimation, testing

➢ Simple and Multiple regressions. Assumptions of multiple regressions. OLS and ML estimation methods. R-square. Testing the significance of coefficients. Dummy variables

➢ Unit root tests. Mean reversion. Autoregressive models. Moving average models. Seasonality. Estimation of AR and MA models

➢ Heteroscedasticity. ARCH/GARCH models. Tests for ARCH/GARCH behaviour.

➢ Estimation of ARCH/GARCH models. Application of ARCH/GARCH models.

Learning Objectives

This course is intended to be an introduction to quantitative statistical methods in finance for non-specialists. Learning objectives are:

➢ Give students a general overview of the methodologies used in quantitative finance
➢ Develop a working knowledge of the language used in quantitative finance. At the end of the course students should be able to correctly use the basic terminology of quantitative finance. Students are asked to prepare Home Works as professional technical documents
➢ Develop a general understanding of the key issues in financial modeling. In particular students should be able to understand the essential challenges of forecasting in finance. Students should be able to correctly understand the problems of modeling with limited information with a large amount of uncertainty. Home Works include questions specifically designed to challenge students’ understanding
➢ Develop a general understanding of how financial modeling must interact with sound economic judgment