

Joseph L. Rotman School of Management **University of Toronto** 

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# Rotman

# Finance & Investment MMF 1920

## COURSE OBJECTIVE:

This course is the introductory finance course in the Mathematical Finance program. Its prime objective is to introduce the student to the core theory of modern finance and develop a basic understanding of the way in which finance academics think. A key learning objective is to understand the basic terminology used by both finance academics and practitioners.

By the end of the course all students should have an appreciation of the different types of financial decisions and where quantitative analysis has been extensively used.

#### ACHIEVING THE OBJECTIVE:

The content of the material will be delivered in a conventional lecture format. The lectures will be based on a package of overheads, that will be made available on my web site http://www.rotman.utoronto.ca/~booth. Note that the overheads should be taken as a guide to the direction of the course; they are not course "notes."

By default, this is a fast-paced course which will require considerable out-of-class work for students without any finance background. Students enrolled in the Mathfin programme have a variety of different backgrounds, as well there are no accounting or economics pre-requisite courses. As a result, some students will find this course easy going, whereas others will find it quite tough.

## **REQUIRED COURSE TEXT:**

There are several graduate finance textbooks that are almost interchangeable, those of you who have a recent MBA finance textbook should probably stick to it, rather than switch to another book with new notation. The following book is used

in the introductory finance course in both the B. Comm (MGT337 & MGT331) and MBA programmes (MGT1330). It is recommended for those without any other finance books.

S. Ross, R Westerfield, B. Jaffe and G. Roberts, (3<sup>rd</sup> Canadian edition)

This book is dated 2003 so it is up to date!

People interested in applying some of the financial models in Excel should consider,

Simon Benninga, Financial Modelling, MIT press, 1997.

We will be using parts of this book to supplement Ross. Other materials will be posted on my web site or circulated by e-mail attachment.

## **EVALUATION SCHEME:**

Since students enter this course with varied backgrounds in finance & economics and we only have eight weeks, there will simply be one final exam. The weighting scheme is:

Final examination	75%
Assignments	25%

## OFFICE HOURS

The instructor is available at any time during regular working hours at his office, room 449 in the Rotman School of Management, 105 St George St, and also by appointment. E-mail is quick and effective and forces people to think through any problems before coming to visit. I generally have my e-mail on and can respond pretty quickly.

# COURSE OUTLINE: FINANCE & INVESTMENT MMF1920

Professor Laurence Booth, Fall Term 2002

- I: September 3 Introduction (RWJR chapters 1, & 3 & Handouts)
  - Fisher Separation
  - Uncertainty
  - Agency Problems
  - Legal & Tax Environment
  - Multi period
  - Flow of Funds
  - Nature of firms
- II: September 10 Financial Statements (RWJR chapter 2 and handouts)
  - Accounting
  - The three statements
  - GAPP
  - Dupont analysis
  - Financial analysis
- III: September 17 Fixed Income (RWJR chapter 4 & 5 (+5A))
  - Time value of money
  - Annuities
  - Bond valuation models
  - interest & reinvestment rate risk
  - Yield curve
  - Unbiased expectations theorem

#### IV: **September 24** Equity valuation (RWJR Chapter 6)

- Stock valuation models
- constant growth
  - two (multi -stage) stage growth models
- **PE** ratios
- Project valuation: non-PV criteria

#### **V**: October **Capital Markets** (RWJR Chapter 9) 1

- Definitions of risk
- Risk-return trade-off
- Single asset capital market theory
- Naive diversification

#### VI: October **Portfolio Theory (**RWJR Chapter 10) 8

- Two risk assets
- CAPM
- assumptions
- extensions

#### VI October 15 Generalised Pricing (RWJR Chapters 11 &12)

- **Empirical tests**
- **Black-Jensen Scholes**
- Black's zero beta model
- Single factor model
- Ross' Arbitrage pricing model
- Comparison with Sharpe's multi beta model
- Pre-specified versus factor analysis
- Fama French model

VII: October 22 Option Pricing (RWJR Chapters 22, 23, 24 & 25)

- Nature of options
- Risk-free hedge
- Black-Scholes OPM
- Examples

IX October 29 Exam

Note, depending on the availability of the Rotman Finance Research and Trading Lab (FRTL) we may squeeze the material to allow the last class to be run out of the lab looking at applications using real data.