

**Aims and Objectives**

The objective of this course is to provide a solid grounding in the principles and practice of financial markets and develop the understanding of the tools necessary to make good financial decisions. The course will cover modern capital markets theory and its applications to corporate finance.

**Topics**

- 1) Financial Markets and Management
  - a) Financial Markets
  - b) Opportunity Cost of Capital
  - c) Role of Financial Markets
  - d) Role of Management
  - e) Arbitrage Pricing
  
- 2) Present Value
  - a) Valuing Cash Flows
    - i) The Time Value of Money
    - ii) Future Value
    - iii) Present Value
    - iv) Value Additivity
  - b) Project Evaluation
    - i) Net Present Value
    - ii) The Net Present Value Rule
  - c) Shortcuts to Special Cash Flows
    - i) Perpetuities - Growing Perpetuities
    - ii) Annuities - Growing Annuities
  - d) Compound Interest Rates
    - i) Compound Interest versus Simple Interest
    - ii) Discrete Compounding
    - iii) Continuous Compounding
    - iv) Effective Annual Yield
  - e) Adjusting for Inflation
  
- 3) Project Appraisal and Capital Budgeting
  - a) Capital Budgeting and the NPV Rule
  - b) Payback
  - c) Internal Rate of Return
  - d) Profitability Index
  
- 4) Introduction to Risk and Return
  - a) Risky Asset Returns
  - b) Characterizing Asset Returns
  - c) Risk and Horizon

- d) The IID Assumption and its implications
- e) Empirics on Risk and Return
  
- 5) Portfolio Selection
  - a) Portfolios of Two Assets
  - b) Diversification
    - i) The Importance of Correlation
    - ii) Systematic and Unsystematic Risk
    - iii) Significance of Diversification
  - c) Optimal Portfolio Selection
    - i) Portfolio Frontier with Two Assets
    - ii) Portfolio Frontier with Multiple Assets
    - iii) Portfolio Frontier with a Safe Asset
    - iv) Frontier Portfolios
  - d) Main Points of Modern Portfolio Theory
  
- 6) The Capital Asset Pricing Model
  - a) The Market Portfolio
  - b) From Portfolio Selection to the CAPM
  - c) Implications of CAPM
  - d) Estimating Betas
  - e) Understanding Betas
  - f) Calculating the Risk Adjusted Discount Rate of a Project
  - g) The Weighted Average Cost of Capital
  - h) Empirical Evaluation of CAPM
  
- 7) Financing and Capital Structure
  - a) Empirical Evidence on Capital Structure
  - b) Modigliani-Miller Irrelevance Proposition
    - i) Cheap Debt Fallacy
    - ii) How leverage Affects the Cost of Capital
    - iii) Calculating the Cost of Capital
  - c) Capital Structure and Corporate Taxes
    - i) Debt Tax Shield
    - ii) Modigliani-Miller with Corporate Taxes
    - iii) Implications
  - d) Cost of Financial distress
  - e) Optimal Capital Structure
  
- 8) Interest Rates and the Valuation of Bonds
  - a) Fixed-Income Markets. US Government Bonds
  - b) Information in Bond Prices
    - i) Spot Interest Rates. Term Structure of Interest Rates.
    - ii) Discount Bond
    - iii) Coupon Bonds
    - iv) Yield to Maturity
    - v) Forward Interest Rates
  - c) Properties of Bond Prices
  - d) Interest Rate Risk - and Maturity - and Coupon Rates
    - i) Measures of Interest Rate Risk (Duration and Modified Duration)

- e) Credit Risk and Corporate Bonds
  - i) Default Risk
  
- 9) Options and Option Pricing
  - a) Options
    - i) Definitions
    - ii) Payoff of Options
  - b) Put-Call Parity
  - c) Option Strategies
  - d) American Options and Early Exercise
  - e) Option Pricing
    - i) One Period; Two Periods Binomial Model
    - ii) Black-Scholes Formula
  
- 10) Corporate Securities as Real Options
  - a) Real Options
  - b) Applications to Corporate Securities
    - i) Zero-Coupon Bonds
    - ii) Senior and Junior Zero coupon Bonds
    - iii) Warrants
    - iv) Convertibles
  - c) First Passage Time Methods
    - i) Black and Cox Decomposition
    - ii) Risk Neutral Valuation
  - d) Capital Structure Valuation Models
    - i) Coupon Paying Debt with a Safety Covenant
    - ii) Optimal Bankruptcy Decision
    - iii) Link with the Standard Real Options Approach
  
- 11) The Valuation of Companies and Stocks
  - a) Characteristics of Common Stock
  - b) Valuation Using Dividends
  - c) Modeling Cash Flows
    - i) with Constant Growth
    - ii) with Multiple Growth
    - iii) Commonly Employed Ratios
    - iv) Growth and New Investments
  
  - d) Growth Opportunities and Growth Stocks
  - e) Stock Price and Earnings per Share
  
- 12) Agency Problems
  - a) Revisiting the Capital Structure Trade-off Theory
  - b) Incentive Problems
    - i) Moral Hazard and Credit Rationing
    - ii) Jensen Meckling. Effort and Risk shifting problems
  - c) Investment Problems
    - i) Debt holders vs. Equity holders. Debt Overhang Problem

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- a) Irrelevance Theorem
- b) Asset Sales and Liquidation
- c) Reorganization and Workouts
- d) Formal Reorganization

**Assessment**

There will be a 2-hour written exam for both F100 and F200.

**Readings**

Brealey, Richard and Stewart Myers - Principles of Corporate Finance, 11th edition, New-York: McGraw-Hill.

**Prerequisites**

The prerequisites for the course include working knowledge of calculus, probability, statistics, linear algebra.