

# FS 70381: Foundations of Finance Theory

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# 1 Course Outline

Learning outcomes:

1. To gain a good understanding of the main theories of asset pricing. In particular to follow the derivation of the Capital Asset Pricing Model and the Black-Scholes option pricing model.
2. To appreciate the applications of these theories in Corporate Finance.
3. To develop analytical skills for use in Finance.

Assessment: One two-hour examination in January (80%), Exercises (20%)

Readings:

Poon and Stapleton, *Asset Pricing in Discrete Time: A Complete Market Approach*, Oxford UP, 2005

Copeland, Weston and Shastri, *Financial Theory and Corporate Policy*, 4th edition, Pearson Addison-Wesley, 2005 (selected chapters)

Each topic will be covered in two 2-hour lectures

For a review of some basic mathematical techniques that are used in financial theory see Copeland and Weston, appendix A, D. For a review of the properties of the normal distribution see Stapleton and Poon, ch 3, appendix.

## Office Hours

Wednesday 1pm-2pm, Thursday 9am-10am (excluding week 6)

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## Lecture Outline

### 1. Mean-variance portfolio analysis and the CAPM

- (a) Portfolio demand, the Separation Theorem
- (b) Market equilibrium: The capital asset pricing model (CAPM)
- (c) Applications in corporate finance: the cost of capital

Copeland and Weston, ch 5,6,7

W F Sharpe, "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk", *Journal of Finance*, Sept 1964

### 2. Asset pricing: a complete markets model

Poon and Stapleton, ch 1

Copeland and Weston, ch 5

S Ross, "The Arbitrage Theory of Capital Asset Pricing", *Journal of Economic Theory*, Dec 1976

### 3. Option Pricing and Risk-Neutral Valuation

- (a) The Black-Scholes model and the pricing kernel
- (b) Extensions and applications

Poon and Stapleton, ch 3, Copeland and Weston, ch 8, 19

F. Black and M. Scholes, "The Pricing of Options and Corporate Liabilities", *Journal of Political Economy*, May 1973

M J Brennan, "The Pricing of Contingent Claims in Discrete Time Models", *Journal of Finance*, March, 1979.

### 4. Multi-period Asset Pricing

- (a) The time-state preference approach
- (b) The rational expectations approach

Poon and Stapleton, ch 5, Copeland and Weston, ch 12

E Fama, “Multiperiod Consumption-Investment Decisions”, *American Economic Review*, March, 1970.

M. Rubinstein, “The Valuation of Uncertain Income Streams and the Pricing of Options”, *Bell Journal of Economics*, Autumn, 1976

5. Forward and Futures Prices

(a) Forward and Futures definitions

(b) Futures prices in a rational expectations framework

Poon and Stapleton, ch 6,

J. Cox, J. Ingersoll and S. Ross, “The Relation Between Forward Prices and Futures Prices”, *Journal of Financial Economics*, Dec, 1981

Ho, T.S.Y., and S.B. Lee, “Term Structure Movements and Pricing of Interest Rate Claims,” *Journal of Finance*, Dec, 1986.