Finance Theory: ECON 870

Spring 2022.

Frank Milne
Office: MCA516
Ph. (613) 533-6494
Email: milnef@econ.queensu.ca

This course covers the classical theory of a competitive economy under uncertainty, asset pricing, optimal portfolio decision-making and the basic elements of corporate finance without frictions. In particular, the course will consider the CAPM, Arbitrage pricing and the APT, the Consumption CAPM, Martingale pricing theory, elementary stochastic interest rate models with and without default risk, and basic Derivative pricing theory in discrete time.

We will introduce the ideas underlying convergence from discrete time to continuous time financial modeling.

We will discuss the Efficient Markets Hypothesis and surrounding confusions.

There will be a brief introduction to asset pricing with illiquid asset markets; and why standard asset pricing models have no role for intermediaries – they are redundant.

We will provide a quick summary of recent theory and application of financial risk management.

I will post interesting and relevant academic and media articles on the course website as the term progresses.

There will be exercise sheets that will prepare you for the Midterm and Final Examinations.

Assessment:

Midterm 50%, Final 50%

Main Texts: (You should have access to these two texts)

J-P. Danthine and J.D.Donaldson, *Intermediate Financial Theory*, (third edition), Academic Press, 2015.

Frank Milne *Finance Theory and Asset Pricing,* (second edition) Oxford University Press 2003.

Note: The Economics 870 website has many of the non text references as pdf files. See:
 https://www.econ.queensu.ca/people/faculty/frank-milne/economics-870

Advanced References:

More advanced references that may be referred to in class or consulted on specific topics.

Mas-Colell, Whinston and Green, *Microeconomic Theory,*OUP, 1995.

N.Bingham and R.Keisel, *Risk-Neutral Valuation,* Springer, 1998

R.Jarrow and S.Turnbull, *Derivative Securities,* South Western,2000, second edition.

R. Jarrow**, *Modelling Fixed Interest Securities,*Stanford, 2002 second edition.

S.Shreve, **Stochastic Calculus for Finance 1: The Binomial Asset Pricing Model**, Springer, 2004.

Topics:
A. Introduction:
1. A Brief History of Finance Theory and Introduction to the Theory:
Milne Ch. 1.
DD Ch.1.

2. Basic General Equilibrium Theory and Asset Pricing Theory:
DD Ch.1 Appendix; Ch.2
 (A) Mas-Colell Ch.10.

B. Review of Expected Utility and Risk Aversion:

3. Expected Utility theory and Risk Aversion:
DD Ch. 3,4
(A)Mas-Colell et al, Ch,6 Sections 6.A-E

4. Risk Aversion and Investment Decisions:
DD 5.

C. Basic Portfolio Theory and CAPM:

5. Portfolio Theory:
DD Chs. 6, 7.

6. CAPM:
DD Ch. 8.

D. Arrow- Debreu Pricing and General Equilibrium Asset Pricing in a Single Period Model:

7 Arrow Debreu Pricing:
Milne Ch.2
DD Ch 9. Sections 9.1-9.4.

8 Incomplete Markets with Production:
Milne Ch 3.
DD Ch.9 Section 9.5.

9 Arbitrage and Asset Pricing: Induced Preferences and the Modigliani-Miller Theorem:
Milne Ch 4.
DD Ch 17. Sections 17.1- 17.4.

10. Arbitrage Asset Pricing: Martingale Pricing:
Milne Ch.5.
DD Ch.9, Section 9.6.

11. Representative Consumers
Milne Ch 6.

12. Diversification and Asset Pricing:
Milne Ch. 7.
DD Ch. 14. Sections 14.1 - 14.3. Sections 14.5 – 14.8
(A)Arnott et al "Alice Alice's Adventures in Factorland: Three Blunders That Plague Factor Investing" *The Journal of Portfolio Management*, April 2019.

E. Arrow- Debreu Pricing and General Equilibrium Asset Pricing in a Multi-Period Model:

13. Options and Arrow Debreu Complete Markets:
Milne Ch. 8.
DD Ch.11.

14. Martingale Measures in Discrete Time with Applications
Milne Chs. 9,10.
DD Ch. 12,13

15. The Binomial Option Pricing Model:
R.Jarrow and S.Turnbull, Chs. 4 and 5.

16. Stochastic Interest rate models:
R.Jarrow and S.Turnbull, Chs.15.
 (A) R. Jarrow, *Modelling Fixed Interest Securities*.

17. The Jarrow-Turnbull Credit Risk model:
R.Jarrow and S.Turnbull, Chs.18.
 (A) R. Jarrow, *Modelling Fixed Interest Securities*.

18. The Efficient Markets Hypothesis and Intro to Behavioural Finance:
Malkiel, "The Efficient Market Hypothesis and Its Critics", *Journal of Economic Perspectives,* Winter 2003.
Shiller, "From Efficient Markets Theory to Behavioral Finance", *Journal of Economic Perspectives,* Winter 2003.
Shiller, "Speculative Asset Prices", Nobel Prize Speech, 2014.

F. Liquid and Illiquid Markets and Intermediation:

19 Basic Theory and Evidence:
Pedersen, "When Everyone runs for the Exits" *International Journal of Central Banking,* pp 177-199, 2009.
Y. Amihud, H.Mendelson and L.Pedersen, "Liquidity and Asset Prices", **Foundations and Trends in Finance**, Vol 1, No.4, 2005, 269-364.

21. Financial Intermediation – Missing Theory in Asset Pricing:
Freixas and Rochet, *Microeconomics of Banking*. MIT Press (Second Edition) 2008.
Chapter 1.

22. An Introduction to Financial Risk Management: The GFC and Covid-19 Crisis:
(a)Historical Crises:
F. Milne (Slide Deck)
(b)Some Recent Theory:
J. Crean and F.Milne (2021) Slide Deck
F.Milne, "The Complexities of Financial Risk Management and Systemic Risks" Bank of
Canada Review, Summer 2009:
https://www.bankofcanada.ca/wp-content/uploads/2010/06/milne1.pdf