

**Financial Derivatives**  
**FNCE 206/717**  
**Summer 2014**  
**Date: July 2, 2014**

**Time:** TuTh 4:30-8:20

**Location:** JMHH 270

**Instructor:** Ronel Elul

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**Office Hours:** Most days after class

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**Course Description:** This course is an introduction to the world of derivative securities, and in particular explores the interaction between an elegant mathematical theory and real-world application. Although the theory may appear fairly mathematical and abstract, it has proved to be one of the success stories of modern economics, providing surprisingly accurate predictions. We will develop a clear understanding of, and appreciation for, this theory, while at the same time demonstrating how it is applied in practice. Applications will be through cases, and we will also briefly discuss how to use Bloomberg Machines to value derivatives.

**Prerequisites:** A first course in Finance (e.g. FNCE 100/611). Probability and Statistics (**essential**). A good background in Calculus (**essential**).

**Readings:** The main text for the course is Options, Futures and Other Derivatives, by Hull (**8th edition**); this is the book favored by Wall Street practitioners. You should purchase this book, which comes together with the solutions manual. There will two bulk packs on study.net (link through Canvas), or in print from Wharton Reprographics. One has the class slides (you should make sure to get this one before the first day of class) and the other has cases and readings.

**Grading:** Grading will be based on cases (30%), an in-class midterm on July 22 (25%), and an in-class cumulative final on August 7 (45%)

## Derivatives –Topic List

Case due dates are preliminary and subject to change

References are to *Options, Futures and Other Derivatives* by J. Hull (8th ed)

7/3: Session 1: Introduction, Financial Innovation (Ch 1, Miller reading). Case groups.

Session 2: Futures & Options – Introduction (Ch2 except 2.10, 3.3, Ch 9 except 9.10)

7/8: Session 3: Interest Rates – Review (4.1-4.5). Valuing Futures and Forwards. (Ch 5)

Session 4: Swaps (7.1-7.7, but not pp. 162-4, 7.11-7.12)

7/10: Session 5: Qualitative Properties of Option Prices (Ch 10)

Session 6: Option Strategies (Ch 11)

*Southwest Case Due*

7/15: Session 7: Binomial Option Pricing (12.1-12.4, skim 20.1-20.4)

Session 8: Continued (12.5-12.11)

7/17: Session 9: Foundations of Binomial Option Pricing (Fed Fund Futures Articles)

Session 10 Midterm Review

*PEPS Case Due*

**7/22: Midterm Exam (in class, covers through 7/17)**

Session 11: Brownian Motion and Stochastic Calculus (13.1-13.4)

Session 12: Continued (13.6-13.7, 14.1-14.4)

7/24: Session 13: The Black-Scholes Model (14.5-14.6, 14.8-14.9, 14.11)

Session 14: Extensions to Black-Scholes (16.1-16.4, 17.1-17.3, skim 17.8); Hedging with Black-Scholes (18.1-18.2, 18.4-18.6, 18.8-18.10)

*Monte Carlo Simulation Due*

7/29: Session 15: Risk Neutral Valuation and Black-Scholes (14.7); Monte Carlo Valuation (20.6); Volatility Smiles (19.1-19.3, Simons article)

Session 16: Value at Risk (21.1-21.4, 21.6-21.8, Simons VaR article, Taleb book optional)

7/31: Session 17: Duration (4.8)

Session 18: Credit Risk in Corporate Debt. Credit Derivatives (23.1-23.5, 24.1-24.3, skim 24.7-24.8)

*Wells Fargo Case Due*

8/5: Session 19: Conclusion and Review. *Orange County Case Due*

8/7: **430-630p. Final Exam** (in-class, comprehensive)