

Derivatives and Financial Markets
[FJNG-255-01]
Fall 2006

Instructor: Professor Ludwig Chincarini, CFA, Ph.D.

Phone: 703-848-1858

Email: chincarini@hotmail.com [preferred email]

Office Hours: 2nd Floor of Library (Mon & Wed 4:00-5:00 PM) or by request.

Class Hours & Location: Mon & Wed, 2:40-3:55 PM, HEA 105

Prerequisites: FINC-211.

Course Description: The course is intended to expand knowledge of derivatives and financial markets. In particular, students will learn in detail the use and pricing of options, the use and pricing of futures, and the use and pricing of forward contracts.

Course Objective: To be familiar with derivatives for ease of understanding concepts produced in the financial press, for a background that would allow a basic intuitive and mathematical understanding of their behavior for work in the financial markets, and to understand how to use derivatives in trading.

Required Texts:

Hull, John. *Options, Futures, and other Derivatives*, 5th or 6th Edition, Englewood Cliffs, N.J., Prentice Hall.

Chincarini, Ludwig & Daehwan Kim. *Quantitative Equity Portfolio Management*, New York, McGraw-Hill.

Reader: A compilation of articles relevant to the course will be posted on Blackboard for use as a reader companion.

Other Reading: Students are encouraged to read the Wall St. Journal. Students can sign up for a subscription with me.

Handouts: Depending on current news topics, handouts relevant to the material will be distributed to students throughout the semester. It will be the students' responsibility to obtain any missed handouts due to absence at a particular class.

A Note on Academic Honesty: Cheating is against the honor code of Georgetown University. Thus, projects, exams, quizzes, and homework should be done with complete integrity. If a case of cheating is detected, I am required by the university to report it to the honor council. Any act of plagiarism is a serious break of academic standards and a deliberate case can lead to suspension or expulsion. Any quotation from another source, whether written or spoken, must be bound by quotation marks and footnoted. Paraphrases must be footnoted as well. Generally, cite the use of words or work by others.

Students agree that by taking this course, papers may be submitted to Turnitin.com for the detection of plagiarism.

Other Non-required Text Books:

1. Cox, John C. and Mark Rubenstein. *Options Markets*. Englewood Cliffs, N.J. Prentice Hall, 1985. [*General Text with specifics on binomial model.*]
2. Wilmott, Paul, Dewynne, Jeff, and Sam Howison. *Option Pricing, Mathematical Models and Computation*, Oxford Financial Press. [*Mathematical treatment of derivatives for those very mathematically inclined.*]
3. Haug, Espen Gaarder. *Option Pricing Formulas*, McGraw-Hill, 1998. [*General manual of option pricing formulas, again for those very mathematically inclined.*]
4. McDonald, Robert L. *Derivatives Markets*. Addison-Wesley. 2003.

Course Requirements and Grading:

Class Participation:	10%
Mid-Term:	25%
Group Case Studies:	20%
Final Exam:	40%
Assignments:	5%

Note: Class participation consists of attendance, making comments, answering questions, and or posing questions during class. I may randomly call on people. Please come to class on time for consideration of your professor and fellow students. The **Mid-Term** will cover all material covered up to that point in the semester. **Group Case Studies** will consist of group projects in which students will work together to prepare a two-page document on specific events in the financial market using derivatives. These studies should analyze the events with particular reference to derivatives. The day the day group study is due, I shall randomly call upon a

group to present the Case to the entire class. All groups should have a small powerpoint presentation prepared and saved on diskette ready to present to the class. After the presentation, there will be an open discussion in the class. The **Final Exam** will be cumulative based upon material covered during the entire course. **Assignments** will be given so that students can practice answering questions over the material studied and will be used primarily to determine borderline cases. Students are strongly encouraged to do problem sets. Students are encouraged to pay attention to **financial news** as some questions may be linked to current financial market events.

Organization and Course Outline¹

Session 1: September 6, 2006²

- 1. Intro to course**
- 2. Overview of the Course**
- 3. The Basics of Forwards and Futures.**
Reading: Chapters 2 & 3. Hull.

Session 2: September 11, 2006

- 4. The Basics of Forwards and Futures.**
Reading: Chapters 2 & 3 & 4. Hull.

Session 3: September 13, 2006

- 5. The Basics of Forwards and Futures.**
Reading: Chapters 2 & 3 & 4. Hull.
Chincarini, Ludwig. "Managing Cash Flows in Sector Portfolios: A Hedging Approach." Reading Packet.
Reading: Chapter 16, Chincarini & Kim.

Session 4: September 18, 2006

- 6. Interest Rate Mathematics**
- 7. The Basics of SWAP Contracts**
Reading: Chapter 5 & 6, Hull.

¹ This may change as we progress through the semester, but in that case, a new outline will be handed out.

² In all cases, dates are the most probable, but again this could change as the semester evolves.

Session 5: September 20, 2006

8. The Basics of SWAP Contracts

Reading: Chapter 6, Hull.

Session 6: September 25, 2006

9. The Basics of Options Markets

Reading: Chapter 7, Hull.

Session 7: September 27, 2006

10. The Basics of Options Markets

Reading: Chapter 7, Hull.

Session 8: October 2, 2006

**11. Group Case Study 1 Presentation: Metallgesellschaft
Debacle**

Session 9: October 4, 2006

12. The Basics of Options and Option Trading Strategies

Reading: Chapter 8 & 9, Hull.

Handout: Investment Strategy Pack, Options Corner.

***** October 9: No Class Columbus Day *****

Session 10: October 11, 2006

13. The Basics of Options and Option Trading Strategies

Reading: Chapter 8 & 9, Hull

14. Review for Mid-Term

Session 11: October 16, 2006

15. Mid-Term Examination

Session 12: October 18, 2006

16. The Black-Scholes Option Model

Reading: Chapter 12, Hull.

Black, Fischer. "How We Came Up With the Formula." Online Reader.

Black, Fischer and Myron Scholes. "The Pricing of Options and Corporate Liabilities". Online Reader.

Session 13: October 23, 2006

17. The Black-Scholes Option Model

Reading: Chapter 12, Hull.

Black, Fischer. "How We Came Up With the Formula." Online Reader.

Black, Fischer and Myron Scholes. "The Pricing of Options and Corporate Liabilities". Online Reader.

Session 14: October 25, 2006

18. The Black-Scholes Option Model

Reading: Chapter 12, Hull.

Black, Fischer. "How We Came Up With the Formula." Online Reader.

Black, Fischer and Myron Scholes. "The Pricing of Options and Corporate Liabilities". Online Reader.

Session 15: October 30, 2006

19. The Black-Scholes Option Model

Reading: Chapter 12, Hull.

Black, Fischer. "How We Came Up With the Formula." Online Reader.

Black, Fischer and Myron Scholes. "The Pricing of Options and Corporate Liabilities". Online Reader.

Session 16: November 1, 2006

20. The Greeks: Hedging and Option Sensitivities

Reading: Chapter 14, Hull.

Handout: Investment Strategy Pack, Options Corner.

Session 17: November 6, 2006

21. The Greeks: Hedging and Option Sensitivities

Reading: Chapter 14, Hull.

Handout: Investment Strategy Pack, Options Corner.

Session 18: November 8, 2006

22. The Binomial Model

Reading: Chapter 10 & 18.1-18.5, Hull.

Session 19: November 13, 2006

23. The Binomial Model

Reading: Chapter 10 & 18.1-18.5, Hull.

Session 20: November 15, 2006

24. The Binomial Model

Reading: Chapter 10 & 18.1-18.5, Hull.

Session 21: November 20, 2006

25. Group Case Study 2 Presentation: The LTCM Crisis

Session 22: November 22, 2006

26. Derivative Applications: Portfolio Insurance & Leveraged Portfolios.

Reading: Chapter 12, Chincarini & Kim.

Session 23: November 27, 2006

27. Derivative Applications: Portfolio Insurance & Leveraged Portfolios.

Reading: Chapter 12, Chincarini & Kim.

Session 24: November 29, 2006

28. Derivative Applications: Portfolio Insurance & Leveraged Portfolios.

Reading: Chapter 13, Chincarini & Kim.

Session 25: December 4, 2006

29. Group Case Study 3 Project Due: Simulated Use of Option Strategy

Session 26: December 6, 2006

30. Words of Wisdom for Life

31. Review for Final Exam

Session 27: December 18, 2006³

32. Final Exam. 12:30 – 2:30 PM

³ *Note:* We will miss class on the following days.

September 4, 2006: Labor Day

October 9, 2006: Columbus Day

Some Useful Reading for the Group Case Studies⁴

1. Group Case Study 1: Metallgesellschaft Debacle

Cathcart, Charles. "The Lessons of Metallgesellschaft," *Global Investor*, 78 (December 1994/January 1995), pp. 64-67.

Culp, Christopher L. and Michael S. Canter. "The Collapse of Metallgesellschaft: Unhedgeable Risks, Poor Hedging Strategy, or Just Bad Luck?" *The Journal of Futures Markets*, 15, (May 1995), pp. 211-64. Reading Packet.

Mello, Antonio S. and John E. Parsons. "Maturity Structure of a Hedge Matters: Lessons from the Metallgesellschaft Debacle," *Journal of Applied Corporate Finance*, 8, (Spring 1995), pp. 106-20. Reading Packet.

Culp and Miller. "Hedging a Flow of Commodity Deliveries with Futures: Lessons from Metallgesellschaft," *Derivates Quarterly*, Spring 1994.

2. Group Case Study 2: The LTCM Crisis

Lowenstein, Roger. *When Genius Failed: The Rise and Fall of Long Term Capital Management*.

Dunbar, Nicholas. *Inventing Money: Long-Term Capital Management and the Search for Risk-Free Profits*.

Chincarini, Ludwig. "The Failure of LTCM", Reading Packet.

Perold, Andre'. Case Studies 1-4. Reading Packet.

⁴ Students are encouraged to seek other sources as well to make their presentations more complete.

Guest Speakers⁵

3. Guest Speaker 1: TBA

We may have a guest speaker come to speak on the practical applications of derivatives.

⁵ None of the guest speakers are confirmed.