

**The Peter Drucker and Masatoshi Ito  
Graduate School of Management  
Claremont Graduate University**

**FINANCIAL DERIVATIVES  
MGT 339  
Fall 2008**

**James Mills**

OFFICE: Burkle 226

TELEPHONE: 909.607.3151 during office hours only (no voice mail)

OFFICE HOURS: Thursdays 3:30 – 5:30 pm

E-Mail: [jim.mills@cgu.edu](mailto:jim.mills@cgu.edu)

In case I cannot be reached please contact

Kathy Holden

909-607-9061

email: [kathy.holden@cgu.edu](mailto:kathy.holden@cgu.edu)

**STRUCTURE AND CONTENT:**

The course reviews many of the recently created derivative products and how each can be used to transform the financial risks of the corporation. Emphasis will be placed on the role that financial engineering plays in the successful execution of corporate strategy. The principal focus of this course will be on how derivative financial instruments can be used to manage or mitigate the various price risks that arise as a consequence of the company's pricing, sourcing, financing and on-going operational decisions. The course begins with a comprehensive theoretical development of futures, forwards, options and swaps. The course ends with an analysis of synthetic and hybrid products which have embedded derivative contracts.

**WHO SHOULD TAKE THIS COURSE?**

This is an introductory course designed for the MBA students who are interested in finance. Completion of MGT 335 "Corporate Finance" or instructor permission is required. For MSFE students, this course is intended to complement the Mathematical Finance course. Knowledge of advanced mathematical techniques is not a requirement for this course.

If you take this class I presume that you are highly motivated, have a good sense of humor, are flexible and can deal with ambiguities and uncertainties, enjoy challenges, and sincerely want to master another sophisticated dimension of corporate finance. Like anything in life, you can only become good through practice and hard work and this class will give you every opportunity to work hard.

This is first and foremost a finance class. The focus of the course is on the use of derivative financial instruments by practitioners. The class does not cover mathematical modeling of derivative instruments. You can cover this topic in the math department. The foundation for the material covered is financial theory. You will be expected to have mastered the finance fundamentals introduced to you in the required introductory finance course presented in the MBA program.

## LECTURE NOTES, MODELS, ADDITIONAL PROBLEMS SETS AND EQUATION SETS

Are on the intranet site sakai.claremont.edu. Download and print out the lecture notes as soon as you can. You will need the lecture notes for class.

## REQUIRED TEXTS

***Derivative Markets***, Robert L. McDonald., (Addison-Wesley), Second Edition - 2006  
(hereafter referred to as **DM**)

## OTHER RESOURCES

***Principles of Corporate Finance***, Brealey and Meyers, 2004

## ELECTRONIC RESERVE

***“Does Risk Management Add Value? The Evidence”***, Charles Smithson and Betty Simkins,  
Journal of Applied Corporate Finance-Volume 17 Number 3, Summer 2005

## SUGGESTED RESOURCES – For your personal library

***The Complete Guide to Option Pricing Formulas***, by Espen Gaardner Haug,  
(McGraw-Hill) 2007

***Applied Math for Derivatives***, by John S. Martin (Wiley) 2001

***Structured Products and Hybrid Securities***, by Satyajit Das (Wiley) 2001

***Real Options: A Practitioner’s Guide***, by Tom Copeland and Vladimer Antikarov  
(Texere) 2001

***Understanding Swaps***, by John F. Marshall and Kenneth R. Kapner (Wiley) 2001

***When Genius Failed: The Rise and Fall of Long-Term Capital Management***,  
Roger Lowenstein (Random House) 2000

***Bond Markets, Analysis and Strategies***, by Frank J. Fabozzi (Prentice Hall)  
2000

***Against the Gods: The Remarkable Story of Risk***, Peter L. Bernstein (Wiley)  
1998

***Managing Financial Risk***, By Charles Smithson (McGraw-Hill) 1998

***Credit Derivatives***, by Satyajit Das (Wiley) 1998

***Real Options***, by Lenos Trigeorgis (MIT Press) 1998

***Black-Scholes and Beyond***, by Neil A. Chriss, (Irwin) 1997

***Financial Engineering***, by Lawrence Galitz (Irwin) 1995

## COURSE OUTLINE

Date/ Class	Subject/Lecture Note Reference/Additional Readings/Cases	Readings/ Exercises (P)
Sept. 4 Week 1	<p><b><i>Introduction to Financial Engineering and Financial Derivatives</i></b>            Fundamental Financial Engineering (Section One, Part A)            Why Manage Risk (Section One, Part B)  <b><i>“Does Risk Management Add Value? The Evidence”</i></b>,</p> <p><b><i>Fundamentals of Pricing</i></b>            Yield Analysis (Section Two, Part A)</p>	<p>DM Ch 1-4 (P)            Ch 2: 1,4,7,9,            10,12,14            Ch 3: 3,5,6,8,            9,11            Ch 4:            1,2,5,12,            13,16,18,19</p> <p>DM Ch 7.1, (P)            Ch 7: 1-3,6-9,            11-13,15,17-            18            20-21,24</p>
Sept. 11 Week 2	<p><b><i>Fundamentals of Pricing</i></b>            Bond Pricing and Bond Price Volatility (Section Two, Part B)</p> <p><b><i>Futures and Forwards</i></b>            Forwards and Futures (Section Three, Part A)            Implied Forward Rates (Section Three, Part B)</p>	<p>DM Ch 5-6, (P)            Ch 5: 2-5,7,8            10,12,15,16            Ch 6: 1,2,6-8,            11</p>
Sept. 18 Week 3	<p><b><i>Futures and Forwards</i></b>            Currency Forwards (Section Three, Part C) + Appendix            Forward Price Curve and Energy Products (Section Three,            Part D)</p> <p><b><i>Swaps</i></b>            Interest Rate Swaps (Section Four, Part A)            Fair Value Swaps (Section Four, Part B – pg 26-34 only)</p>	<p>DM Ch 8 (P)            Ch 8:2-7, 9,            12,14</p>
Sept. 25 Week 4	<p><b><i>Swaps</i></b>            Currency Swaps (Section Four, Part C)            Energy Swaps (Section Four, Part D)            Forward Swaps (Section Four, Part E)</p> <p><b><i>An Introduction to Options</i></b>            An Introduction to Option Pricing (Section Five, Part A)</p>	
Sept. 26 Week 4	<p><b><i>An Introduction to Options</i></b>            Option Boundaries (Section Five, Part B)            Option Terminology (Section Five, Part C)</p>	<p>DM Ch 9-11 (P)            Ch 9: 1-4,7-</p>

<b>Date/ Class</b>	<b>Subject/Lecture Note Reference/Additional Readings/Cases</b>	<b>Readings/ Exercises (P)</b>
<b>Make-up Class 9:00 am - 12:00 pm</b>	Binomial Options (Section Five, Part D)	<b>8,14,15,17 Ch 10: 1, 3- 6,9,12,16,18 Ch 11: 1,2,7,8, 12,14,16</b>
<b>Oct 2 Week 5</b>	<b><i>An Introduction to Options</i></b> Binomial Options (Section Five, Part D)  <b><i>The Black-Scholes Option Pricing Model</i></b> <b>Black-Scholes (Section Five, Part E)</b> Understanding the Greeks (Section Five, Part F)  Additional Supplemental Files (Will not be covered in class) Stock Price Behavior (Section Five, Part G) From Discrete to Continuous (Section Five, Part H) BSM and Stochastic Calculus (Section Five, Part I)	<b>DM Ch 12-13 (P) Ch 12: 1,3- 7,10,12,18  Ch 13: 1- 4,15-16</b>
<b>Oct 9 Week 6</b>	<b>No Class</b>	
<b>Oct 16 Week 7</b>	<b><i>Mid-term Examination</i></b>	
<b>Oct 23 Week 8</b>	<b><i>Options on Stock Indices, Currencies, and Futures Contracts</i></b> First Generation (Section Six, Part A) Synthetic Option Structures (Section Six, Part B) Interest Rate Options (Section Six, Part C)	
<b>Oct 30 Week 9</b>	<b><i>Options on Interest Rate Products</i></b> Swaptions (Section six, Part D) Corporate Applications (Section Six, Part E)	<b>DM Ch 24</b>
<b>Nov 6 Week 10</b>	<b><i>Exotic Options</i></b> What are Exotics (Section Seven, Part A) Time Dependent Options (Section Seven, Part B) Path Dependent Options (Section Seven, Part C)	<b>DM Ch 16,17 (P)</b>
<b>Nov 13 Week 11</b>	<b><i>Exotic Options</i></b> Multi-factor Options (Section Seven, Part D) Multi-factor Options Extended (Section Seven, Part E)	<b>DM Ch 14, 22 (P) Ch 14: 3- 8,11,18,21</b>

<b>Date/ Class</b>	<b>Subject/Lecture Note Reference/Additional Readings/Cases</b>	<b>Readings/ Exercises (P)</b>
<b>Nov 20 Week 12</b>	<b><i>Design of Hybrid Instruments and Securities- Structured Notes</i></b> Floating Rate Notes (Section Nine, Part A) Stripped Capped Floaters (Section Nine, Part B) Introduction to Structured Notes (Section Nine, Part C) Equity and Interest Rate Linked Notes (Section Nine, Part D)	<b>DM Ch 15 (P) Ch 15: 1- 5,7,14,16-18</b>
<b>Nov 27 Week 14</b>	<b>No class session due to Thanksgiving Holiday</b>	
<b>Dec 4 Week 15</b>	<b><i>Design of Hybrid Instruments and Securities- Structured Notes</i></b> Equity and Interest Rate Linked Notes (Section Nine, Part D) Currency Linked Notes (Section Nine, Part E) Commodity Linked Notes (Section Nine, Part F)	
<b>Dec 11 Week 16</b>	<b>Final Exam</b>	

The solutions to the problems in the McDonald text are on electronic reserve. You are expected to work on these problems on your own.

**\*\*Calendar subject to change.**

#### **Course Grading (approximate distribution)**

Examination #1	45%
Final Exam	55%

Examination #1 will cover everything up to and including the material through week 6 of the class. **The midterm will be held on Thursday evening, October 16.** The Final will cover the material presented from week 7 through week 14 and will be administered during the last week of classes on **Thursday evening, December 11.**