

<b>Course Title</b>	:	Derivative Securities and Hedging Strategies
<b>Course Code</b>	:	FIN3355
<b>Recommended Study Year</b>	:	3
<b>No. of Credits/Term</b>	:	3
<b>Mode of Tuition</b>	:	Sectional Approach
<b>Class Contact Hours</b>	:	3 hours per week
<b>Category in Major Programme</b>	:	Stream Elective – Finance Stream
<b>Prerequisite</b>	:	FIN2300 Investment and Portfolio Management

### **Brief Course Description**

The course will introduce the concepts and terminologies of financial derivatives and cover the theory and practice of pricing and hedging derivative securities. Students will critically study the important features of the trading and hedging strategies of various derivatives as well as the models and methodologies to price standard derivatives. Some emphasis is put on the investment uses of derivatives and methods employed in managing and controlling derivative risks.

### **Aims**

The objective of the course is to provide a study on the concepts, theories and investment characteristics of the derivatives securities. Upon completion of this course, students are expected to achieve a command of the necessary knowledge and tools to use financial derivatives in risk hedging and to value financial derivatives. These concepts and tools are helpful to practitioners who want to use these securities.

### **Learning Outcomes (LOs)**

On completion of this course, students will be able to:

1. describe the characteristics and features of various derivative securities
2. price derivative securities with mathematical models
3. form investment and arbitrage strategies with derivative securities
4. manage risk exposure and hedge by means of derivative securities

## **Indicative Contents**

### **Basics**

International futures and options markets.  
Characteristics of financial futures and options.  
Profit-loss profiles.  
Interest rates

### **Pricing**

Pricing of financial forward and futures.  
Binominal option pricing model.  
Black-Scholes option pricing model.  
Option implied volatility.  
Other variations.

### **Variations**

Swaps.  
Non-standard (exotic) options.  
Credit default swaps.  
Other new derivatives.

### **Trading Principles**

Futures position trading.  
Basis trading.  
Option trading strategies.  
Option volatility trading.

### **Hedging Principles**

Basic futures hedging.  
Basis risk.  
Optimal hedges.  
Option Greeks

### **Advanced Uses**

Proxy and synthetic investments.  
Program trading.  
Portfolio insurance and dynamic hedging.  
Misuse of derivatives: excess volatility and market crash.

## **Teaching Method**

Theoretical concepts and practical issues will be taught in class. Students will also solve in-depth quantitative and qualitative problems and discuss relevant cases.

### **Measurement of Learning Outcomes**

1. Common tests including concepts and computational questions assess students' continual efforts in keeping up with the progress and requirement of the course and their fundamental understanding of different topics covered in the lectures. (LO1, LO2)
2. A comprehensive final examination measures the students' understanding of theories and concepts as well as their ability to apply them in analyzing realistic cases and gauge students' mastery of financial problem-solving techniques and skills. (LO1, LO2, LO3, LO4)
3. Group project and assignments measure the students' understanding of the content covered in lectures continuously and their ability to price options using real-world data. (LO2, LO3, LO4)
4. Open-end questions and essay questions assess students' understanding of theories and concepts as well as their ability to apply them in analyzing realistic cases. Workout problems gauge students' mastery of financial problem-solving techniques and skills. (LO1, LO3, LO4)

### **Assessment**

- Continuous Assessment: Group project and assignment 15%  
A team of students are required to price a standard option using real-world data and to work on some end-of chapter questions.
- Continuous Assessment: Two tests 35%  
Common tests will use conceptual and computational questions to test students' mastery of basic knowledge in derivatives. Open-end and short essay questions may also be given to test students' ability to articulate understanding of key concepts.
- Examination: Cumulative Final 50%  
Final examination tests will include multiple choice questions, workout problems, short essays, and open-end questions to gauge students' understanding of the key concepts and theories, their financial problem-solving skills and their ability to apply the theories to real-world situations.

While computational questions will be used to test students' mastery of skills and tools, sufficient essays and open-end questions will be given to test their interpretation of numerical answers and application of concepts.

### **Required/Essential Reading**

HULL, John C., *Fundamentals of Futures and Options Markets*, latest Edition, Prentice-Hall, 2013.

**Recommended/Supplementary Readings**

HULL, John C., *Options, Futures and Other Derivatives*, 9th ed., Prentice-Hall, 2014.

STULZ, Rene M., *Risk Management and Derivatives*, Thomson South-western, 2003.

**Important Notes**

- (1) Students are expected to spend a total of 12 hours (i.e. 3 hours of class contact and 9 hours of personal study) per week to achieve the course learning outcomes.
- (2) Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the Regulations Governing University Examinations. In particular, plagiarism, being a kind of dishonest practice, is “the presentation of another person’s work without proper acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student’s own work”. Students are required to strictly follow university regulations governing academic integrity and honesty.
- (3) Students are required to submit writing assignment(s) using Turnitin.
- (4) To enhance students’ understanding of plagiarism, a mini-course “Online Tutorial on Plagiarism Awareness” is available on <https://pla.ln.edu.hk/>.