Financial Derivatives
MSc in Finance and Banking
Athens University of Economics & Business
Instructor: Prof. Nikolas Topaloglou

Aims and objectives:

The aim of this course is to introduce students to the theoretical and practical aspects of financial derivatives. Specifically, the course examines the pricing and use of financial derivatives including options, forward contracts, futures contracts and swaps. The course will extensively focus on the theory and applications of derivatives in speculation and risk management. Moreover, the course includes a computational demonstration of the pricing models with excel.

At the end of the course, the students will have a full understanding of derivatives markets, concepts and pricing tools. They are expected to develop competencies in pricing, hedging and trading strategies of derivatives. They will be also able to implement the above pricing tools and methods to effectively manage financial risks in practice.

Course outline and reading list

1. **Futures Markets**
   (Valuation of Futures Contracts, Hedging with Futures contracts, Futures on Commodities)

2. **Forward Markets**
   (Valuation of Forward Contracts, Hedging with Forward contracts)

3. **Interest Rates, Interest Rate Futures**
   (Interest rates, Forward rate Agreements, Eurodolar Futures, Valuation of Interest Rate Futures)

4. **Swaps**
   (Swaps Markets, Plain Vanilla Swaps, Curency Swaps, Valuation of Swaps contracts)

5. **Stock Options**
   (Types of Options, their characteristics and properties, trading strategies with Options)

6. **Pricing Options-Binomial Tree**
   (Option Valuation with multi-stage Binomial Trees)

7. **Pricing Options-Black Scholes**
   (Option Valuation with the Black-Scholes model)

8. **Risk Management with Derivatives**
   (Uses of Derivatives in Portfolio Management)

9. **The Greek Letters**
   (Delta and Gamma Hedging, the Greeks)

Text Books:

John C. Hull "Options, Futures, & Other Derivatives" Prentice Hall.

Jarrow & Turnbull "Derivative Securities," South Western.

Robert Whaley, "Derivatives: Markets, Valuation, and Risk Management", Wiley.

Robert L. McDonald "Derivative Markets," Addison-Wesley Series in Finance.

Don M. Chance & Robert Brooks, "An Introduction To Derivatives And Risk Management" Thomson Southwest Learning.

Salih N. Neftci "An Introduction to the Mathematics of Financial Derivatives," Academic Press.

Paul Wilmott "Derivatives: The Theory and Practice of Financial Engineering," Wiley.