

AFIN204 - Derivatives & Risk Management

Course Title	Derivatives & Risk Management			
Course Code	AFIN204			
Course Type	Elective			
Level	BA (Level 1)			
Year / Semester	3rd year/ Fall			
Teacher's Name	Dr Antonis Michis			
ECTS	6	Lectures / week	3	Laboratories/week
Course Purpose	<p>This is an advanced course in finance which focuses on extending knowledge in the modern theory of options pricing and risk management.</p> <p>The course builds the conceptual framework for understanding the fundamentals of derivatives, the different types of derivatives and their pricing. The course also shows how to use derivatives in a risk management context.</p>			
Learning Outcomes	<ol style="list-style-type: none"> 1. Describe derivatives markets and instruments 2. List the characteristics of forwards and futures and implement hedging demonstrating their use 3. Describe the no arbitrage argument and the valuation of forwards and futures 4. Apply risk-neutral valuation method for the pricing of options. 5. Appraise different types of options using binomial trees and analytic methods 6. Identify the importance of risk management and apply risk management tools based on option theory in practice 8. Use programming software to develop derivative pricing and risk management models 			
Prerequisites	AFIN101, AFIN102	Co-requisites	None	
Course Content	<p>Derivative markets and instruments: what is a derivative, derivative markets, forwards vs futures, purposes and benefits of derivatives, introduction to the no arbitrage principle</p> <p>Forwards and Futures: definitions, examples of using forwards and futures for hedging risk, valuation of forwards and futures on stocks or stock indices with/without dividends, forwards and futures on foreign currency, valuation</p>			

	<p>of commodity futures, the cost-of-carry and convenience yield, differences between forward and future contracts</p> <p>Option pricing theory: basic no arbitrage restrictions for options and put-call parity, dividends and optimal early exercise of American options, risk-neutral pricing and the derivation of binomial tree parameters for option pricing, binomial trees for pricing of options of various types</p> <p>Risk management: risk management using options and futures, delta hedging and other Greeks</p> <p>Application of option pricing theory in the valuation of corporate assets and liabilities: Merton's model for the valuation of equity and risky debt and credit spreads, sensitivity analysis on Merton's model</p> <p>Use programming software to develop models: Introduction to R programming for modelling financial phenomena, Using R programming to analyze data. Applications to models developed in class</p>
<p>Teaching Methodology</p>	<p>The course is delivered to the students by means of lecturers, conducted with the help of computer presentations and the use of the board.</p> <p>The lecturer provides demonstrations and examples. Students are then asked to expand on this knowledge by solving problems and applying their knowledge in a group project.</p> <p>Lecture notes and other course material like spreadsheets and R programs examples are available to students through the e-learning platform.</p>
<p>Bibliography</p>	<p>(a) Textbook:</p> <p>J. Hull Options, Futures and Other Derivatives, Pearson/Prentice Hall, Pearson; 10 edition (January 30, 2017)</p> <p>Brealey, R., Myers, S., and F. Allen, Principles of Corporate Finance, McGraw Hill, 13th edition, 2019</p> <p>CFA Program Curriculum 2020 Level I-III, Wiley</p> <p>(b) References:</p> <p>Agliardi, E., Amel-Zadeh, A., & Koussis, N. (2016). Leverage changes and growth options in mergers and acquisitions. <i>Journal of Empirical Finance</i>, 37, 37-58.</p> <p>Afik, Zvika, Ohad Arad, and Koresh Galil. Using Merton model for default prediction: An empirical assessment of selected alternatives. <i>Journal of Empirical Finance</i> 35 (2016): 43-67.</p> <p>Lenos Trigeorgis, <i>Real Options: Managerial Flexibility and Strategy in Resource Allocation</i>, The MIT Press (March 14, 1996)</p>
<p>Assessment</p>	<p><u>(a) Methods:</u> Students will be assessed with course work that involves written and assignments (quizzes), a small group project and a midterm and a final test. The course involves both explaining concepts and numerical problems.</p>

	<p><u>(b) Criteria:</u> Assessment criteria are available in each written assignment, midterm or in the final exam</p> <p><u>(c) Weights:</u></p> <ul style="list-style-type: none"> • Assignments (& online quizzes) 10% • Group project 10% • Midterm 30% • Final Exam 60%
Language	English language