



Derivatives Fundamentals Class

An assisted e-learning course

"The emergence of e-learning has been a game changer for self-motivated learners. It gives you the flexibility of learning at your own pace. You control the time when you learn and you chose the topics that you want to emphasize."

Derivatives Fundamentals Class

Dive into the World of Derivatives Straight from your Home or Office

If you seek a solid foundation upon which you can build a career in derivatives, but so far you have little knowledge and you do not know where to start, then the Derivatives Fundamentals e-course is exactly what you need! The course introduces you to options and other derivative instruments in a straightforward but rigorous way. And even if you already have some experience with derivatives, we think you're going to see a clearer, more intuitive explanation of derivatives than you have seen before. The course introduces the main types of derivative instruments and explains how they are used, valued and risk managed. We look at the trading as well as the investment side of the derivatives market, we show you how derivatives are used in investment strategies and we explain how a derivatives trader manages his book. The course requires no special mathematical skills but provides you with enough quantitative support so that you can have informed discussions with option traders and any other option specialist.

Course Structure

Derivatives Fundamentals is a modern self-paced e-learning course in which the learner has full control over his learning path. The course is divided into 11 modules. Each module consists of a series of interactive lectures and case studies. You are not just a passive participant; you get fully involved in teaching yourself. The course ends with a comprehensive online test.

Module Overview

The course consists of about 40 short sessions organized into 11 modules. Each session is about 15 minutes long ("click-through" time without exercises). Here an overview of the modules and sessions:

Introduction	Introduction to your Derivatives Fundamentals workbench and a preview of what you are going to see in this course.
Module 1 Forwards Forward contracts are the most basic financial derivative, and are a central key to understand financial derivatives.	What are Forwards? In this session we formally introduce you to forwards and explain all the related jargon.
	Uses of Forwards Forward contracts are very versatile. They can be used for hedging, speculation, or form part of an investment strategy. But their non-standardized and tailored nature makes forwards particularly suitable for hedging. We show you 3 hedging examples.
	Basic Forward Pricing The spot price is the price agreed today for a trade that settles immediately. The forward price is the price agreed today for a trade that settles in the future. But what drives the difference between the spot price and the forward price? Here a first answer.
	Cash vs. Physical Settlement At maturity, a forward contract can have significant value. A positive value for one counterparty means a negative value for the other. But how are these values realized? There are 2 different methods for settling the contractual obligations between the two counterparties.
	Knowledge Check Finally, 10 simple questions for you to test your understanding of forwards.

<p>Module 2 Futures</p> <p>Futures are the exchange traded equivalent of forwards. Futures contracts are highly standardized and cleared through a central counterparty.</p>	<p>Forward vs. Futures</p> <p>Forwards can be tailored to specific investor needs. Futures on the other hand are standardized and trade over the exchange. As a consequence, they are more liquid and have less counterparty risk.</p>
	<p>A Worked Example</p> <p>We take you through the lifecycle of a future contract. We explain the details from the trade date when you enter into the contract, over the daily marking to market during the contract's life, to the final settlement of the contract.</p>
	<p>Liquid Future Contracts</p> <p>An introduction to some of the most important future contracts around the globe.</p>
	<p>Knowledge Check</p> <p>Finally, time for more exercises and an opportunity to test your knowledge.</p>
<p>Module 3 Financing a Trade</p> <p>Without the ability to finance long and short positions there would be no liquid markets. This is especially true for the derivatives markets. Without financing there is no arbitrage and without arbitrage the price structure between spot, forwards and options disintegrates.</p>	<p>Financing Basics</p> <p>In the professional wholesale market, finance trades are typically done on a collateralized basis. The trades are driven by either the need of cash or the need of a specific security. This first session is an introduction into the topic.</p>
	<p>Repo and Securities Lending</p> <p>In the professional wholesale market, financing a trade is typically done on a collateralized basis. There are two very similar markets for collateralized funding, the repo market and the securities lending and borrowing market.</p>
	<p>Short Selling</p> <p>Short selling means selling a security you do not own. In that case you will have to borrow the security from a third party in order to deliver it to the buyer. We take you through a detailed short selling example.</p>
	<p>Knowledge Check</p> <p>Finally, some questions for you to advance and test your knowledge.</p>

<p>Module 4 Forward Price The forward price is the price agreed today for delivery of the underlying at a future point in time. But what defines the forward price? Are market makers free to set the forward price they want, or is it defined by market forces?</p>	<p>Forward Price and Carry Costs We review how a bank risk manages a forward position over time. The bank's resulting net hedging costs are also referred to as net carry costs. Net carry costs drive the forward price.</p>
	<p>Arbitrage-Free Pricing We explain the concept of arbitrage-free pricing and derive a universal formula to price any financial forward. We demonstrate how to take advantage of a mispricing should the forward price deviate from its arbitrage-free price.</p>
	<p>Pricing Equity Index Futures Our universal pricing formula can also be applied to equity index futures. But the devil lies in the details. We show you how to do it and discuss the operational challenges to arbitrage-free pricing.</p>
	<p>Pricing Currency Forwards The pricing of currency forwards is also based on the concepts of carry costs and arbitrage. But what defines the net carry costs of an FX underlying and what are the implications for the forward price? Get all the answers to your FX forward questions in this session.</p>
	<p>Risk in Forwards and Futures Forwards and futures have the same price risk as the underlying instrument. But on top of it, they are exposed to changes in the basis. We introduce the concept of basis risk.</p>
	<p>Knowledge Check Time to test your knowledge on forward pricing and show what you have learned.</p>
<p>Module 5 Total Return Swaps In this module we explain what total return swaps are, how they are used, priced and hedged. We end the module with a map of all instruments with the same risk as the underlying.</p>	<p>Total Return Swaps: The Mechanics In a total return swap, one party pays the total return of a reference asset and the other party pays a fixed or floating interest rate. We discuss the cashflow and mechanics behind these OTC contracts.</p>
	<p>Hedging Total Return Swaps Hedging a total return swap is similar to hedging a forward or a future. But there are some subtle differences. Especially when the underlying is a dividend paying share.</p>
	<p>Delta One All delta-one products have the same price risk as the underlying, but they can differ in all other aspects. This session explains the world of delta-one products.</p>
	<p>Knowledge Check Finally, some questions for you to advance and test your knowledge.</p>

<p>Module 6 Option Basics In this session we formally introduce you to options and explain all the related jargon. The module lays the foundation on which we can then expand in the subsequent modules.</p>	<p>Introduction to Options We introduce you to all the main contracts and all the jargon.</p>
	<p>Upside and Downside With options we can slice and dice the risk of an underlying. A long call option represents the upside risk, a short put option the downside risk of the underlying asset.</p>
	<p>Moneyness Moneyness relates an option's strike price to the market price of the underlying. Moneyness is an important driver of an options value. This section introduces you to the concepts of moneyness and parity.</p>
	<p>Simple Option Graphs A profit-and-loss graph is a simple but powerful tool. It helps you understand the risk and profit potential of an option or option strategy. In this session you learn to graph basic option positions. We will come back to graphing later when we talk about option strategies.</p>
	<p>Knowledge Check Finally, some questions for you to test your knowledge.</p>

<p>Module 7 Volatility and Value Drivers Moneyness, volatility and time are the key factors that drive the value of an option. This module will simplify and straighten your thinking about options.</p>	<p>Parity and Volatility Value We decompose an option's value into a component related to moneyness and another component linked to volatility.</p>
	<p>Anchor Points Options with extreme strikes provide us with "anchor points" when thinking about option values.</p>
	<p>What is Volatility? Volatility is an "overloaded" word. It has many different meanings. In this session we summarize the basic facts about volatility.</p>
	<p>Volatility and Time How does volatility and time interact? We start with a simple example to illustrate why risk is not linear and then translate our insights into a handy rule of thumb.</p>
	<p>Knowledge Check Finally, some questions for you to test your knowledge.</p>

<p>Module 8 Valuation and Models</p> <p>Option models don't need to be black boxes. The main principles and assumptions behind a model are often relatively simple. After working through this module, you have a better understanding of what option models do, how they work and how to use them.</p>	<p>Absolute and Relative Valuation</p> <p>In finance there are two fundamentally different approaches to value an instrument: Relative valuation and absolute valuation. This session is a brief outline of how the two methods are used when valuing derivatives.</p>
	<p>The 5-Stick Valuation Model</p> <p>The 5-stick model is our main option model in this course. Its simplicity is its beauty. We can see and understand all its inner workings.</p>
	<p>Model Calibration</p> <p>An option model needs to be properly calibrated to produce useful results; we need to adjust the parameters of the model to reflect the current market conditions. Thinking about calibration yields additional insights about value drivers.</p>
	<p>5-Stick Calculator</p> <p>Even with the simple 5-stick model, getting to an option's value requires a good number of keystrokes. A dedicated calculator would be handy. In this session we introduce you to your new friend, the five-stick option calculator.</p>
	<p>Extra - Black-Scholes Calculator</p> <p>We show you how to use a Black-Scholes calculator. This is an "extra" for those who want a calculator that reflects the dynamics of the underlying more accurately than our simple 5-stick calculator.</p>
	<p>Valuation Lab</p> <p>A model is a laboratory we can use to experiment and test how options behave in different market situations. Off to the laboratory then.</p>
	<p>Knowledge Check</p> <p>Finally, some questions for you to test your knowledge.</p>

<p>Module 9 Put-Call Parity</p> <p>Put call-parity is the most important relationship between European call and put options. It has far reaching consequences not only for European options.</p>	<p>An Example to Start</p> <p>In the valuation lab we made some observations about the volatility value of call and put options at the strike. What is the reason behind that?</p>
	<p>Put-Call Parity – The Facts</p> <p>Put-call parity is a relationship between a forward a call option and a put option. This relationship can be formulated in different ways.</p>
	<p>Put-Call Parity – The Trades</p> <p>A guide of how to trade and harvest put-call parity violations.</p>
	<p>A Futures Example</p> <p>The underlying is an equity index. We analyze the market prices, search for arbitrage opportunities and harvest mispricings.</p>
	<p>A Stock Example</p> <p>The underlying is a single dividend paying share. We analyze the market prices, search for arbitrage opportunities and harvest mispricings.</p>
	<p>Knowledge Check</p> <p>Time to test your knowledge on relative valuation and show what you have learned.</p>

<p>Module 10 Option Strategies</p> <p>Option strategies are combination of multiple option contracts, tailored to capture a specific investment view. This module introduces the major option strategies and how investors use them.</p>	<p>Complex Option Graphs Complex graphs visualize the aggregated profit and loss of multiple option contracts. They are more complicated to graph than one might think. This lecture introduces as step-by-step guide how to draw complex option graphs.</p>
	<p>Option Strategies An introduction to the main option strategies and how they are used by investors. Terms such as “straddle” or “butterfly” will come to life in this session.</p>
	<p>Leverage Are derivatives dangerous? The concept and risk impact of leverage is explained in this session. Investors must understand leverage in order to safely handle derivatives.</p>
	<p>Leverage Lab What drives leverage and how can you steer it? Your turn to experience how leverage relates to how a position is funded and what option strike you select. Experiencing leverage is just as important as understanding it.</p>
	<p>Knowledge Check Time to practice and test your knowledge</p>

<p>Module 11 Risk Measures</p> <p>A trader’s profit and an investor’s expected return are endangered when market conditions change. Risk measures quantify the amount of risk caused by changes in market conditions.</p>	<p>Risk and Risk Measures Risk is exposure to change; risk measures quantify this exposure. In this session we discuss what risk means for the investor and what it means for the trader.</p>
	<p>Delta The first risk to be managed is delta risk. Delta is the “speed” at which option values change when the underlying price changes. Delta risk can be managed by trading the underlying.</p>
	<p>Vega and Volatility Delta is not a constant. Delta is likely to change due to spot movement. Gamma is the measure of how delta will change as spot moves.</p>
	<p>Theta and Time As time to expiry get smaller, the option value decays. Theta is the measure this decay. It is the rate at which your option “ages”.</p>
	<p>Gamma Delta risk is typically the most important risk of a derivative. But delta is not a constant. Delta is likely to change due to spot movement. Gamma is the measure of how delta will change as spot moves.</p>
	<p>Strategies and Risk Measures We show you how risk measures can help you to understand your strategy.</p>
	<p>Knowledge Check Time to practice and test your knowledge</p>

<p>Final Exam</p>	<p>Apply what you have learned in a final online exam.</p>
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Your Educational Partner and Coaches

Nosco Partners is a Swiss based company with international finance experience, servicing banks, asset managers and institutional investors. The Nosco Partners are all banking professionals with a strong academic background and extensive education experience. They have worked for many years on the business and education side of a large international bank, where client focus and practical relevance is key.

Walter Braegger, Ph.D., Partner

Walter is an expert in developing and delivering finance & risk education. For more than 20 years, he has educated finance market professionals around the globe. His expertise includes derivatives, equities, foreign exchange, fixed income and commodities, as well as special topics such as corporate finance, equity & credit analysis, risk management & control, portfolio construction and behavioral finance.

Vincent Couson, CFA, CAIA, Partner

Vincent has more than 20 years of financial market experience. Before joining Nosco Partners he was a Senior Member of the UBS Strategic Investment Advisory team developing tailored investment solutions for institutional clients around the globe. His expertise covers portfolio construction & analysis, asset & risk management as well as derivatives and structured products.

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