

# MathFinance Training

## FX Exotic Options



### Who should attend?

- ▲ **Quants/ Financial Engineers:** To learn how the products are used
- ▲ **Traders:** To deepen the technical background
- ▲ **Risk Managers:** To understand the front-office way of thinking
- ▲ **Structurers:** To learn more about pricing and models
- ▲ **Researchers:** To understand the practical matters
- ▲ **Sales People:** To get the overview of product development and smile adjustments

This course is for anyone new to FX Exotics and for those who need to bring their knowledge up to date and learn how the overall FX options market works. However, this is not a basic course on options and understanding of the FX vanilla options market and FX smile is essential to understanding exotics. The program is also not a pure quantitative modeling seminar, but will provide the necessary mathematics you need to understand to be successful in FX Options.

### Why this course?

Uwe Wystup has been teaching this course for over 10 years and refines it constantly to the specific needs of the banking industry. Almost all known banks and software companies incl. ABN Amro, Bank of America Merrill Lynch, Banca IMI, Bank of Thailand, Barclays, Bloomberg, BNP Paribas, BHF-Bank, Commerzbank, Danskebank, Dresdner Kleinwort, DZ Bank, HSBC, ICICI Bank, ING, KBC Belgium, La Caixa Spain, Landesbanki Island, Lippobank, Lloyds, Morgan Stanley, Nordea, OCBC, Royal Merchand Bank South Africa, RBS, Standard Chartered, Superderivatives, The Austrian Banking Regulation Association, UBS, Unicredit, Wachovia (USA) have sent regular participants to this course.

Uwe and his team at MathFinance work on the current challenges of the financial industry in their projects on a daily basis. They belong to the few global hybrids working on bridging the gap between the derivatives market and academic research.

Some quotes from former attendees:

- ▲ *"I would like to thank Uwe Wystup for providing this course. It is very well organized, hundreds of questions were answered, many details clarified, especially those that one can hardly find in a text-book. I really enjoyed it, thank you."*
- ▲ *"Best balance between practice and theory"*
- ▲ *"Great course with in-depth about (exotic) FX options. Uwe clearly has lots of experience and explains the complex material very clear."*
- ▲ *"Wystup is good!"*

Further background information on  
[www.mathfinance.com](http://www.mathfinance.com)

### Your instructor



Uwe is an extremely experienced practitioner in the field of foreign exchange options, a senior academic and a highly engaging trainer. He has worked as financial engineer, trader and structurer at Deutsche Bank, Citibank, UBS, Sal. Oppenheim and Commerzbank. He is founder and managing director of MathFinance AG, a global team of financial engineers providing consulting / software for FX Options desks.

### Pricing per day and person

Regular: EUR 1000\*  
Early bird: 10% off at EUR 900\* until July 31<sup>st</sup>.  
Group discount (3 or more): 10% off at EUR 900\*  
\* 19% VAT will be added

The rate includes course material, refreshments and lunch on all days.

As an FX Options international expert in both academia and practice, Uwe is well known for his many publications on FX Exotics and related topics. His 2002 book on Foreign Exchange Risk has become a market standard. The second edition of his book on FX Options & Structured Products was published in 2017 as part of the Wiley Finance Series and a new one on Modeling Foreign Exchange Options will appear soon in the same series.

His academic career began with his PhD in mathematical finance from Carnegie Mellon University and evolved to his current role as Professor of Financial Option Price Modelling and Foreign Exchange Derivatives at University of Antwerp and Honorary Professor of Quantitative Finance at Frankfurt School of Finance & Management.

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## FX Exotic Options

### Course Overview & Agenda

Foreign Exchange options and exotics are becoming increasingly commonplace in today's capital markets. The objective of this workshop is to develop a solid understanding of the current exotic currency derivatives used in international treasury management. This will give participants the mathematical and practical background necessary to deal with all the products on the market.

Learn how the FX Options market works from an extremely experienced practitioner, get the market view you can't get from a text book, benefit from in-class case studies and exercises, immediate practice of the theory, learn about the FX smile surface, the way it is built, used and handled. Get the feeling of the hedging approach, understand what most off-the-shelf software provides: insights into pros and cons of financial models, understand structuring well so that you can do it yourself and not be cheated any longer, understand how to hedge which product and the market price of hedging strategies.

#### Day 1

Review of the Fundamentals

Fundamentals

Pricing and Hedging in the Black-Scholes model

Vanilla Options

*Workshop: Acquaint yourself with pricing software and market quotes Volatility*

*Workshop: Build your own interpolation tool for volatility smile, calculate Greeks in terms of deltas, hedging volatility risk, deriving the strike from the delta with smile*

Structuring with Vanilla Options

*Workshop: Structure your own seagull. Include sales margin. Solve for zero-cost.*

*Calculate delta and vega hedge. Discuss bid-ask spread. Analyze smile effect.*

#### Day 2

Structuring and Pricing Models

First Generation Exotics: Products, Pricing and Hedging

*Workshop: Hedging a knock-out with a risk reversal. Build your own semi-static hedging tool, discuss forward volatility risk*

Applications in Structuring

*Workshop: Structuring exercises: build structures, solve for zero cost, smile adjustment, bid-ask spreads*

Vanna-Volga Pricing compared to Local-Stochastic Volatility

*Workshop: Pricing of barrier options with smile*

Overview of Market Models

#### Day 3

Second Generation Exotics, Pricing and Hedging issues

The Pedigree of Barrier and Touch Options

*Workshop: How to construct the universe of barrier and touch options from key building blocks: vanilla and one-touch. Residual risk and limitations. Static, semi-static and dynamic hedging approaches*

Single Currency Exotics beyond Standard Barrier and Touch Options

*Workshop: Structure and price your own accumulative forward with smile adjustment.*

Target Forward pricing and hedging

Multi-Currency Exotics

*Workshop: Pricing and correlation hedging a two-currency best-of: calculate your own sensitivities and hedge vega and correlation risk*