Solvay Brussels School
Economics & Management

AMFM-2526-510 DERIVATIVES

Name of lecturer(s) & Email	Level/Semester, Status, Timing	ECTS*, CH & SDL**
Hugues Pirotte hugues.pirotte@ulb.be	Semester 1 / term 2 Compulsory Between 14/11/2025 to 15/12/2025 + exam	1.5 12 33

Description of the course

This course aims at providing an intuitive understanding of how derivatives work, are priced and are used for different purposes: speculation, arbitrage and hedging, but overall, how they can allow to share risks differently without having to modify the original exposure in a more direct way. This includes "being aware" of their potential of influence and the limitations in their pricing.
It is also important to include their use in a professional context, where accounting rules, market conditions, regulations, compliance and scrutiny, disclosure have evolved substantially. That means that the "suitability" of the type of derivative chosen might be lingering on more than just purely financial quantitative aspects.
The course will go through the various types of derivatives, from standard ones to more complex ones, and visiting a diverse range of underlyings, starting with stocks, interest rates (IR), foreign exchange (FX) rates, and some commodities.

Course units

1) What are derivatives? What makes them special? Some ancient history of risk management.
2) The main typology.
3) What are they useful for? The case of ABX: American Barrick Resources. To hedge or not to hedge.
4) Forwards & Futures: from stocks to indices.
5) The case of commodities.
6) FX Forwards and some background about international finance. When worldwide relations evolve: the cross-currency basis.
7) From FX Forwards to Currency Swaps: the case of WAPswiss.
8) Options, their uses and their combinations.
9) The various approaches to the pricing of standard options.
10) Monte-Carlo simulations for more complex optional cases (not presented, just discussed).
11) Trading with options: the use of greeks (not presented – illustrative slides only).
12) Interest-rate forwards, and the term structure of interest rates.
13) Interest-rate swaps.

Course Learning Outcomes (CLOs)

1) Understand the use and evaluation of linear derivatives.
2) Understand the use and evaluation of non-linear derivatives.
3) Apply the former to a variety of underlyings: stocks, IR, FX and commodities.
4) Implement portfolio strategies and take decisions that shape your exposure to risk exposures through the use of financial derivatives.
5) Be capable to apply these notions to real cases or cases inspired by real situations.

Prerequisite (if any)

No preparation required before the course other than the course of "Overview of Financial Markets".

Contribution to Programme Learning Objectives (PLOs)***

- Learning Objective 1.1:
- Learning Objective 2.1:
- Learning Objective 3.1:
- Learning Objective 4.1.:
- Learning Objective 5.1:

Evaluation scale

0-20

Main Teaching methods used in the course

1) Slides to be annotated/built during the evolution of the course, with some developments pre-written on slides.
2) Excel in-class notes/illustrations and teaching notes for further use.
3) Readings for the two last sessions.
4) Mini-cases to practice the various methods and decisions to make.
5) Interactions to build the storytelling together.

Contribution to the Environmental, social and governance (ESG)

Course Contribution to ESG: Yes
Contact Hours are dedicated to ESG: 1
Contact Hours containing climate solutions for how organizations can reach net zero: 0
Description of contribution: how derivatives can be used to tackle issues, reduce/share exposures that can make trading with local or emerging markets more viable, and therefore revisit the supply chain knowing that we can dissociate the underlying need from the financial exposure

Notice: The information available in the course outline is subject to change. Please keep yourself informed at all times by regularly checking Canvas.

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Assessment methodology / Learners Use of Time and Load

Written Exam

*ECTS - European Credit Transfer and Accumulation System (1 ECTS = 30 hours of learning)
CH - Contact Hours in class or online, **SDL - Self-Directed Learning including readings, homework, group work, preparation to assessment, etc
***PLO - Programme Learning Objectives are available on the curriculum page

- weight 100%
- workload estimated = 33 hours
- due: 12 January 2026
- Guidelines: The exam consists in small exercises and situations to assess the good understanding of the notions, more than the exactitude/precision of the numbers.

Readings

Required
Any cases submitted beforehand.
Recommended
John Hull, Options, Futures, and Other Derivatives 11th Global Edition, Pearson.

Other Learning Materials
On demand.

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