

- Faculté des sciences économiques
- [www.unine.ch/seco](http://www.unine.ch/seco)

## Derivatives (5AF2002)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en finance</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master en statistique</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

### Période d'enseignement:

- Semestre Printemps

### Equipe enseignante

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### Contenu

This course provides an introduction to derivatives on the master level. We will cover in detail:

- Introduction to derivatives
- Responsible usage of derivatives
- Trading strategies
- Pricing of forwards and futures
- Pricing of swaps
- Distribution-independent properties of options
- Pricing of options using the binomial model
- Wiener Processes and Ito's Lemma
- The Black-Scholes formula
- Greeks
- Structured products

The course is structured into lectures, exercises, excel tutorials, case studies, and a guest lecture.

### Forme de l'évaluation

Grading is based on the following components:

- 20%: Oral participation in class
- 30%: Presentation of a case study (which will be allocated during the first lectures)
- 50%: Final exam, 120-minutes written exam during the exam session

Retake exam: 2-hour written exam (100%) during the exam session

The final exam and retake exam are open-book. Students are allowed to use a non-programmable calculator and the lecture material.

No connected devices are permitted during the final exam. In case of violation of these rules, the students are in a situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

### Documentation

The main textbooks are:

- Faculté des sciences économiques
- [www.unine.ch/seco](http://www.unine.ch/seco)

## **Derivatives (5AF2002)**

Hull, John C. (2014): Options, Futures, and Other Derivatives, 9th Edition, Pearson.  
McDonald, Robert L. (2013): Derivatives Markets, 3rd Edition, Pearson.

### **Pré-requis**

Mandatory courses of the M.Sc. Finance program in the 1st semester; good knowledge in mathematics and probability theory.

### **Forme de l'enseignement**

Lectures, exercises, excel tutorials, case studies, and a guest lecture: 4 hours per week.

### **Objectifs d'apprentissage**

Au terme de la formation l'étudiant-e doit être capable de :

- Analyse the price behaviour of forwards, futures, swaps, and options
- Calculate the price of a derivative with the help of a statistical software programme
- Identify trading strategies associated with derivatives
- Compute the fair value of a derivative

### **Compétences transférables**

- Discuss the implications of your findings with your professor
- Prepare the solution of a case study related to derivative markets
- Present the solution of a case study in a small team in front of your classmates