

- Faculté des sciences économiques
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## Derivatives (5AF2002)

| Filières concernées          | Nombre d'heures    | Validation        | Crédits ECTS |
|------------------------------|--------------------|-------------------|--------------|
| <b>Master en finance</b>     | <b>Cours: 4 ph</b> | <b>écrit: 2 h</b> | 6            |
| <b>Master en statistique</b> | <b>Cours: 4 ph</b> | <b>écrit: 2 h</b> | 6            |

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

### Période d'enseignement:

- Semestre Automne

### Equipe enseignante:

Prof. Patrick Roger  
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### Objectifs:

This course is designed to provide a basic understanding of derivative-related financial instruments (forwards, futures, and options) and introduce the analytics of derivative valuation. Knowledge of basic pricing analysis, use of pricing models, and trading and hedging strategies are developed. Students are first introduced to the basic techniques for pricing, hedging, and other analysis. And then, these techniques will be applied through an introduction of hedging strategies.

### Contenu:

1. Mechanics of Futures Markets
2. Hedging Strategies Using Futures
3. Interest Rates
4. Determination of Forward and Futures Prices
5. Mechanics of Option Markets
6. Properties of Stock Options and Trading Strategies Involving Options
7. Binomial Trees
8. Wiener Processes and Ito's Lemma
9. The Black-Scholes-Merton Model
10. The Greeks

### Forme de l'évaluation:

Final exam: 100% (3-hour written exam during the last lecture of the semester)  
Reexamination session : 2-hour written exam (100%).

### Documentation:

Hull, John C. Options, Futures, and Other Derivatives, 9th Edition, Pearson, 2014.

### Pré-requis:

Microeconomics (bachelor level), Elementary mathematics and probability for economists (bachelor level).

### Forme de l'enseignement:

Lectures: 4 hours per week.