

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

## Risk Management (5AF2026)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en finance</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 Automne

### Equipe enseignante

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### Contenu

1. Chapter 1: Probability theory and quantitative analysis
2. Chapter 2: Risk factor modelling
3. Chapter 3: Capital markets and financial products
4. Chapter 4: Value at Risk as a tool for market risk management
5. Chapter 5: Credit risk management.
6. Chapter 6: Measuring and assessing liquidity risk

#### Problem sets:

Students will have to solve five problem sets that will be corrected in class. These problem sets will be practical implementations of the theoretical concepts that are introduced during the lectures. Even if they can be solved on Excel, it is highly recommended to use a statistical/econometric package such as Matlab to solve them. Students will have the opportunity to get familiar with Matlab during a specific training session right after the start of the class.

### Forme de l'évaluation

2-hour (open book) written exam during the last lecture of the semester: 60% of the final evaluation.

Problem sets to be solved by groups of three students: 40% of the final evaluation.

Re-take exam: 2-hour written exam (100%).

Connected devices (phones and personal computers) are not permitted during the exams.

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

Alexander, C., 2009, Market Risk Analysis (four-volumes set), John-Wiley and Sons.

Christoffersen, P., 2012, Elements of financial risk management, Academic Press.

De Servigny, A. and O. Renault, 2004, The Standard & Poor's Guide to Measuring and Managing Credit Risk, McGraw and Hill.

Hull, J., 2012, Options, Futures and Other Derivatives, Pearson.

Jorion P., 2011, Financial Risk Manager Handbook, Wiley Finance.

Jorion, P., 2002, Value at Risk, McGraw-Hill.

McNeil, A., Frey R., and P. Embrechts, 2005, Quantitative Risk Management: Concepts, Techniques, and Tools, Princeton University Press.

Meucci, A., 2005, Risk and Asset Allocation, Springer Verlag.

Sheppard, K., 2012, Financial Econometrics Notes, Available at:

[http://www.kevinshppard.com/images/c/c0/Financial\\_Econometrics\\_2012-2013.pdf](http://www.kevinshppard.com/images/c/c0/Financial_Econometrics_2012-2013.pdf)

### Forme de l'enseignement

Lectures: 4 hours per week.

### Objectifs d'apprentissage

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### **Risk Management (5AF2026)**

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

- Interpret major risk measures (e.g. VaR, CVaR, etc.)
- Select the most appropriate risk measures for various portfolio types
- Identify the main sources of instrument and portfolio risk
- Question the validity of specific risk measures
- Test the validity of risk measurement systems
- Write formal and professional reports
- Solve applied use cases during the problem sets
- Employ advanced programming languages (e.g. Matlab, Python) to solve practical use cases

### **Compétences transférables**

- Manage a project
- Develop hands-on, pro forma modelling skills using Excel
- Communicate results in writing
- Apply knowledge to new situations