- Faculté des sciences économiques
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Quantitative Methods for Finance (5AF2041)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en finance	**Cours: 4 ph**	**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

We learn how to apply quantitative methods to common problems in finance. The focus of this course is on how to implement familiar methods and the interpretation of empirical results, as required both in practice and research in finance.

- Data description and return characteristics
- Sampling and estimation, hypothesis testing
- Simple linear regression
- Multiple linear regression
- Time series, ARMA models, and forecasting
- Modeling volatility: ARCH and GARCH models
- Modeling correlation: Multivariate GARCH models
- Testing factor models
- Testing the efficient market hypothesis
- Introduction to continuous time processes
- Estimation of continuous time processes in finance

Forme de l'évaluation

Project (30%) group project to be solved during the semester and 2-hour written final exam (70%) during the exam session at the end of the semester.

Allowed tools (written exam): simple calculator, cheat sheet (one page DIN-A4, back and front, handwritten NOT printed).
In case of violation of these rules, the students are in situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

Modalités de rattrapage

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

Allowed tools: simple calculator, cheat sheet (one page DIN-A4, back and front, handwritten NOT printed).
In case of violation of these rules, the students are in situation of fraud and the unauthorized items will be removed. The exam could be deemed

URLs	1) https://moodle.unine.ch/course/view.php?id=9745

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as failed.

Documentation

- Introduction to Econometrics, by Stock and Watson, 4th edition, Pearson
- Financial Modeling under Non-Normality, by Jondeau, Poon, and Rockinger, Springer
- Time Series Analysis, by Hamilton, Princeton University Press

Pré-requis

Solid knowledge of fundamentals in statistics and econometrics (Bachelor level)

Forme de l'enseignement

Lectures: 4 hours per week

Objectifs d'apprentissage

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

- Communicate the results of a quantitative analysis in finance to experts and non-experts
- Apply quantitative methods to financial data
- Assemble an appropriate quantitative method and recognize potential limitations
- Describe important quantitative methods in finance
- Select the appropriate quantitative methods, given a specific problem and properties of the data
- Formulate finance problems in a statistical model
- Demonstrate competency in making evidence-based judgements

Compétences transférables

- Identify appropriate solutions
- Develop critical thinking skills
- Develop numeric and quantitative skills.
- Review your priors by reflection and experience
- Communicate effectively in the context of a given audience

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