UCLouvain

llsms2224

2017

Computational Finance

5 crédits	30.0 h	Q1

Enseignants	Béreau Sophie ;Gnabo Jean-Yves (supplée Béreau Sophie) ;
Langue d'enseignement	Anglais
Lieu du cours	Louvain-la-Neuve
Préalables	You should have a knowledge of basic topics in statistics, econometrics and finance such as those covered in the following courses: Fundamental mathematical and statistical concepts (such as those covered in Mathématiques avancées et fondements d'économétrie [LECGE1337]) Advanced Finance [LLSMS2100A or LLSMS2100B]
Thèmes abordés	This course overviews topics in computational finance and financial econometrics (data sciences applied to finance). The emphasis of the course will be on making the transition from an economic model of asset return behavior to an econometric model using real data. This involves: 1. exploratory data analysis; 2. specification of models to explain the data; 3. estimation and evaluation of models; 4. testing the economic implications of the model; 5. forecasting from the model. The modeling process requires the use of economic theory, matrix algebra, optimization techniques, probability models, statistical analysis/econometrics, and statistical software (R). Both edX and DataCamp plateforms will be used to allow practical training and continuous learning on R.
Acquis d'apprentissage	1 **Upon completion of this course, students are expected to complete the following key tasks:** 1. Have a good understanding of important issues in financial econometrics and computational finance; 2. Be able to apply concepts and tools learned in class. **Upon completion of this course, students are expected to develop the following capabilities :** 3. Knowledge and reasoning; 4. Critical thinking skills. - - - - *La contribution de cette UE au développement et à la maîtrise des compétences et acquis du (des) programme(s) est accessible à la fin de cette fiche, dans la partie « Programmes/formations proposant cette unité d'enseignement (UE) ».*
Modes d'évaluation des acquis des étudiants	**Continuous evaluation** • Date: Will be specified later • Type of evaluation: Computer labs • Comments: 50% **Evaluation week** • Oral: No • Written: Yes • Unavailability or comments: 25% **Examination session** • Oral: No • Written: Yes • Unavailability or comments: 25%
Contenu	The following topics will be covered: 1. Introduction to R manipulation and programming (1x3h) 2. Expected utility framework and modern portfolio theory using R (3x3h) 3. Refresher on basic econometrics and linear regression (1x3h) 4. TS topics (including volatility modelling) (3x3h) 5. GMM estimation applied to asset pricing (1x3h)

Faculté ou entité en charge:	CLSM

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Crédits	Prérequis	Acquis d'apprentissage
Master [120] en ingénieur de gestion	INGE2M	5		
Master [120] en ingénieur de gestion	INGM2M	5		