


5 crédits

30.0 h

Q1

Enseignants	Ghysels Eric ;
Langue d'enseignement	Anglais
Lieu du cours	Louvain-la-Neuve
Préalables	<p>You should have a knowledge of basic topics in statistics, econometrics and finance such as those covered in the following courses:</p> <p>Fundamental mathematical and statistical concepts (such as those covered in Mathématiques avancées et fondements d'économétrie [ LECGE1337 ])</p> <p>Advanced Finance [LLSMS2100A or LLSMS2100B]</p>
Thèmes abordés	<p>This course overviews topics in computational finance and financial econometrics (data sciences applied to finance).</p> <p>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.</p> <p>This involves:</p> <ol style="list-style-type: none"> <li>1. exploratory data analysis;</li> <li>2. specification of models to explain the data;</li> <li>3. estimation and evaluation of models;</li> <li>4. testing the economic implications of the model;</li> <li>5. forecasting from the model.</li> </ol> <p>The modeling process requires the use of economic theory, matrix algebra, optimization techniques, probability models, statistical analysis/econometrics, and statistical software (R).</p> <p>Both <a href="#">edX</a> and <a href="#">DataCamp</a> platforms will be used to allow practical training and continuous learning on R.</p>
Acquis d'apprentissage	<p><b>Upon completion of this course, students are expected to complete the following key tasks:</b></p> <ol style="list-style-type: none"> <li>1. Have a good understanding of important issues in financial econometrics and computational finance;</li> <li>2. Be able to apply concepts and tools learned in class.</li> </ol> <p><b>Upon completion of this course, students are expected to develop the following capabilities :</b></p> <ol style="list-style-type: none"> <li>3. Knowledge and reasoning;</li> <li>4. Critical thinking skills.</li> </ol> <p>-----</p> <p><i>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) ».</i></p>
Modes d'évaluation des acquis des étudiants	<p><b>Continuous evaluation</b></p> <ul style="list-style-type: none"> <li>• Date:</li> <li>• Type of evaluation:</li> <li>• Comments:</li> </ul> <p><b>Evaluation week</b></p> <ul style="list-style-type: none"> <li>• Oral:</li> <li>• Written:</li> <li>• Unavailability or comments:</li> </ul> <p><b>Examination session</b></p> <ul style="list-style-type: none"> <li>• Oral:</li> <li>• Written:</li> <li>• Unavailability or comments:</li> </ul>
Contenu	<p>The following topics will be covered:</p> <ol style="list-style-type: none"> <li>1. Introduction to R manipulation and programming (1x3h)</li> <li>2. Expected utility framework and modern portfolio theory using R (3x3h)</li> <li>3. Refresher on basic econometrics and linear regression (1x3h)</li> <li>4. TS topics (including volatility modelling) (3x3h)</li> <li>5. GMM estimation applied to asset pricing (1x3h)</li> </ol>

Faculté ou entité en charge:	CLSM
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<b>Programmes / formations proposant cette unité d'enseignement (UE)</b>				
Intitulé du programme	Sigle	Crédits	Prérequis	Acquis d'apprentissage
Master [120] en ingénieur de gestion	INGM2M	5		
Master [120] en ingénieur de gestion	INGE2M	5		