UCL Université catholique de Louvain

LACTU2240

2015-2016

STOCHASTIC FINANCE 2

5.0 credits	30.0 h	2q

Teacher(s) :	Devolder Pierre ; Ars Pierre ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Prerequisites :	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes :	The first part is devoted to the application of option theory to the value of life insurance contracts (contract with a guaranteed rate or unit linked contracts). The second part is an introduction to stochastic optimal control and its actuarial applications.
Aims :	The aim of this course is to apply the methods of stochastic finance in insurance and pension funds. At the end of the course, the students must be able to apply the concepts of quantitative finance to various concrete problems of insurance *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	Content The following topics will be developed: Part 1 / STOCHASTIC METHODS OF VALUATION 1. Classical actuarial valuation 2. Deflators, discounting and fair value 3. Life insurance with participation 4. Unit linked insurance 5. Look back options and pricing 6. Valuation of the surrender option 7. Option on annuity PART 2 / STOCHASTIC CONTROL 1. Presentation of the financial market 2. Introduction to stochastic control 3. Dynamic optimization in continuous time 4. Introduction to Malliavin calculus 5. Actuarial applications Methods In-class activities X0 Lectures X0 Exercices/PT At home activities X0 Exercices to prepare the lecture X0 Paper work
Other infos :	Evaluation : Class participation and written examination, in French Support : Slides provided through icampus
Faculty or entity in charge:	LSBA

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Actuarial Science	ACTU2M	5	LINMA2725 **and** LACTU2020 **and** LACTU2060 **and** LACTU2070	
Master [120] in Business Engineering	INGM2M	5	-	
Master [120] in Business engineering	INGE2M	5	-	