



Cours Haut niveau : Introduction à la théorie des processus

Conférenciers : Claude Dellacherie (Université de Rouen) et
Sonia Fourati (Insa Rouen)

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Le cours de Claude Dellacherie porte sur l'introduction à la théorie générale des processus:

- *Filtrations et temps d'arrêt.*
- *Tribus optionnelle et prévisible.*
- *Théorèmes de section par des temps d'arrêt.*
- *Théorèmes de projection optionnel et prévisibles.*
- *Théorèmes de projection duale.*
- *Applications à la théorie des martingales.*
- *Temps d'arrêt flous.*
- *Ensembles aléatoires.*

Le cours de Sonia Fourati porte sur l'application de la théorie générale des processus aux processus de Lévy.

Les exposés:

Azmi MAKHLOUF: *Existence and Gaussian bounds for the density of Brownian motion with random drift.*

M'hamed GAIGI: *Liquidity risk and optimal dividend and investment strategies.*

Ishak HAJJEJ: *Optimal Contract with Moral Hazard for Public Private Partnerships.*

Mohsen CHEBBI: *Stochastic modeling of the anaerobic model AM2b: Models at different scales.*

Takwa SAIDAOU: *The delta hedging error of an Asian-type option.*



Program School

11/04/2016	12/04/2016	13/04/2016	14/04/2016
9h-11h Sonia FOURATI Lévy processes	9h-11h Sonia FOURATI Lévy processes	9h-11h Sonia FOURATI Lévy processes	9h-11h Sonia FOURATI Lévy processes
<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
11h30-12h30 Claude DELLACHERIE Process theory	11h30-12h30 Claude DELLACHERIE Process theory	11h30-12h30 Claude DELLACHERIE Process theory	11h30-12h30 Claude DELLACHERIE Process theory
<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>
14h-15h Claude DELLACHERIE Process theory	14h-15h Claude DELLACHERIE Process theory	14h-15h Claude DELLACHERIE Process theory	14h-15h Claude DELLACHERIE Process theory
	<i>Coffee break</i>	<i>Coffee break</i>	
	15h30-17h Presentation session 1	15h30-17h Presentation session 2	

Workshop

Ecole Nationale d'Ingénieurs de Tunis

April 28, 2016

- 08h45-09h00 : Reception of the participants
- 09h00-09h40 : Said Hamadène , University of Maine, France
Existence and uniqueness of viscosity solutions for second Order integro-differential equations without monotonicity condition: A new result.
- 09h40-10h20 : *Coffee break.*
- 10h20-11h00 : Dylan Possamai, University of Paris Dauphine
Recent progress and open questions in Principal-Agent Problems.
- 11h00-11h30 : Wahid Faidi, University Tunis Manar
Expected utility maximization problem under state.
- 11h30-12h00 : Azmi MAKHLOUF, University Tunis Manar
Existence and Gaussian bounds for the density of Brownian motion with random drift.
- 12h00-14h00 : *Lunch break.*
- 14h30-15h00 : Yousri Henchiri
Nonparametric learning approach to estimate conditional quantiles in the Functional Data Case.
- 15h00-15h30 : Olfa Draouil, University Tunis Manar
A Donsker delta functional approach to optimal insider control and applications to finance.
- 15h30-16h00 : *Coffee break.*
- 16h00-16h30 : Ishak Hajjej, University Tunis Manar
Optimal Contract with Moral Hazard for Public Private Partnerships.
- 16h30-17h00 : Mhamed Gaigi, University Tunis Manar
Risk and optimal dividend and investment strategies.

Abstracts

Speaker : Said Hamadène , University of Maine, France

Title : Existence and uniqueness of viscosity solutions for second Order Integro- differential equations without monotonicity condition: A new result.

In this talk, we discuss a new existence and uniqueness result of a continuous viscosity solution for integro-partial differential equation (IPDE in short). The novelty is that we relax the so-called monotonicity assumption on the driver which is classically assumed in the literature of viscosity solution of equation with a non local term. Our method is based on the link of those IPDEs with backward stochastic differential equations (BSDEs in short) with jumps for which we already know that the solution exists and is unique.