



# M2MO Random Modelling

Course 1 : statistics and random models in finance

Course 2 : statistics and data science



## Conventions



## Research labs



### FUNDAMENTAL COURSES

<b>S. Pécché</b>	Stochastic calculus and diffusion models	<b>M. Merle</b>	Markov Chains
<b>A. Fischer</b>	Data modelling: founding principles	<b>S. Gaiffas</b>	Introduction to machine learning

### GROUP QUANTITATIVE FINANCE

<b>P. Tankov, S. Scotti</b>	Stochastic processes in finance
<b>B. Bruder</b>	Financial products
<b>P. Tankov</b>	Model risk and model validation for pricing
<b>Z. Grbac</b>	Advanced modelling of interest rates
<b>R. Aid, O. Feron</b>	Energy markets

### GROUP DATA SCIENCE

<b>M. Mougeot</b>	Data science and statistics of industry
<b>F. Rossi</b>	Graphical models in machine learning
<b>K. Tribouley</b>	Data sciences : use cases for the CRM
<b>S. Boucheron</b>	Methods for large data sets
<b>S. Cléménçon, J. Salmon</b>	Statistical learning
<b>J. Lussange</b>	Introduction to reinforcement learning

### GROUP ASSETS MANAGEMENT

<b>B. Bruder</b>	Quantitative assets management
<b>H. Pham</b>	Stochastic control in finance
<b>M.C. Quenez</b>	Backward stochastic differential equations and applications
<b>O. Guéant</b>	Algorithmic trading

### GROUP STATISTICS AND FINANCE

<b>J.M. Bardet</b>	Financial time series
<b>A. Gloter</b>	Statistics of diffusions
<b>J.Y. Audibert</b>	Prediction and sequential investments
<b>J. Turc, S. Ungari</b>	Filtering techniques and statistical analysis applied in finance

### GROUP RISK MANAGEMENT

<b>H. Pham, A. Ouattara</b>	Risks: regulation, measure and management
<b>R. Rouge</b>	Credit risk modelling

### GROUP PROBABILITY AND STATISTICS

<b>J. Salez</b>	Mixing time and cutoff phenomenon for Markov chains
<b>C. Toninelli</b>	Interacting particle systems

### GROUP NUMERICAL AND APPROXIMATION METHODS

<b>N. Frikha</b>	Monte Carlo methods
<b>Y. Achdou, O. Bokanowski</b>	PDE and numerical methods
<b>H. Pham</b>	Asymptotic methods in finance
<b>J.F. Chassagneux</b>	Advanced probabilistic numerical methods in finance

### GROUP COMPUTER SCIENCE

<b>O. Carton, F. Vigier</b>	C++
<b>S. Souchet</b>	Software in statistics



**REQUIRED LEVEL : Master 1 with strong mathematical background, Engineering school**

**DIRECTION :** Jean-François CHASSAGNEUX, Huyên PHAM (Paris 7), Fabrice ROSSI (Paris 1)

**WEBSITE :** <https://masterfinance.math.univ-paris-diderot.fr>



**REGISTRATION :** Application to download on E-Candidat (<https://ecandidatca.app.univ-paris-diderot.fr>) or Campus France (out of Europe)

University Paris Diderot - Paris 7, UFR de Mathématiques, **Secretary Master 2**, case 7012, 75205 PARIS CEDEX 13  
Building Sophie Germain, : Room 5055, 5<sup>th</sup> floor, Tel. 01 57 27 93 06, Email: [secretariat-m2mo@math.univ-paris-diderot.fr](mailto:secretariat-m2mo@math.univ-paris-diderot.fr)