

# CHOIX 3 MATIÈRES : HORS PHD TRACK

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Composante  
Ecole  
d'économie  
de la  
Sorbonne  
(EES)



Période de  
l'année  
Printemps

## Liste des enseignements

Obligatoire00Matière2.018.0Summary: This course will present the different types of financial crises and bubbles on financial markets, and the theoretical and empirical around them, to better understand the triggers and consequences of financial crises. The class will help understand how financial analysts assess the evolution of certain asset prices, create specific indicators as early warnings of potential crises, as well as the actual and possible regulatory responses. It will also present recent financial innovations and question their impact on financial stability. The goal of the class will be to use those analytical tools to be able to assess, like professional analysts, recent market events or chosen examples. Each class will develop a skill that will be use in the final analytical paper, where each student will choose among recent questions linked to market evolution, how to answer professionally and clearly. Skills to develop: Problematize an economic question on recent financial markets evolution and contextualize it socially, historically and within the academic literature. Think like an economist to reach a deeper understanding of how a financial innovation can impact the financial system as a whole and evaluate potential solutions/regulation if needed. Learn how to use evidence, in combination with economic theory and research design, to ask questions about how data change your understanding of the issue at stake. Analyze multi-dimensional economic datasets and present descriptive statistics them clearly. Communicate professionally on a research outcome in front of various audiences. Plan: Introduction: refresher on financial stability. The financial system and financial crises: types of crises, recent examples. Bubbles and contagion through theoretical and empirical papers. How to prevent a crisis or a bubble? Analysis 1: recent bubble example How should public intervention be defined, incentives or constraints? New tools for new instruments and evolution: macroprudential policies, shadow banking and innovation. Analysis 2: recent regulation. Examples of financial crisis 1: the Great recession and the global financial crisis, what were the causes of the global financial crisis? Concepts and empirics around the main causes. Analysis 3: comparison with another crisis. Examples of fin crisis 2: what was the causes of the EMU crisis? How to create an optimal currency area? Analysis 4: main feature of the crisis. Examples of fin crisis 3: Covid-19 crisis, how to analyze recent events? Analysis 5: risk indicators. How to analyze new financial instruments, modern bubbles, and recent debates in financial stability: Bitcoin prices, ETFs, "meme" stocks, IPOs, ICOs and SPAC, HFT and flash crashes, short selling ban and its impact on markets, etc... Analysis 6: chosen example. Lecturer: Caroline Le Moign (Senior Economist - European Securities Markets Authority) Student assessment: Writing a research paper

Matière2.018.0Summary: The objective of the course is to prepare students for the FRM (Financial Risk Manager) Level 1 certificate. The main valuation and risk models taught are:- VaR and Expected Shortfall (parametric, non-parametric & hybrid approaches).- Options, Binomial Trees, Black-Scholes model, Greeks, Hedging strategies.- Bond valuation: Spot & Forward Rates, Returns, Spreads, Yields.- Probability of Default (PD) and Loss Given Default (LGD). The languages used are Python and R. Professor: Daniel Petrov (Director - Master 2 Finance Technology Data) Student assessment: Projects in Python / R.

Matière2.018.0Summary: The objective of this course is to explore different case studies where data science can be used in the insurance sector. After a refresher of the fundamentals of insurance – including the economic theory of insurance, the insurance environment, and the insurance products; the course will focus on two core insurance functions: pricing and risk management. The course will provide an overview of key theoretical concepts in both domains and will explore business challenges and how data science can be used. The last part of the course will focus on innovation and the impact of data and digitalization on the insurance value chain. Course prerequisites: Knowledges in Probability, Statistics, Econometry. Plan: Insurance fundamentals Traditional pricing in Insurance Risk and investments: how Solvency II changed the ALM environment Insurtech and innovation in insurance Professors: Ludovic Bonneau (Allianz France), Aude-Sixtine Rousseau (Allianz France) Student assessment: Students will be invited to perform data analysis / develop models applied to the insurance sector as a conclusion to this lecture, present their case and objectives, and suggest choices to insurers.