

Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
ECON419	Financial Econometrics and Modeling	7	3	0	0	3	6
Prerequisites							
Admission Requirements							
Language of Instruction	French						
Course Type	Elective						
Course Level	Bachelor Degree						
Objective	To model the dynamic functioning of financial systems. To analyse the processes of price formation and evolution in financial markets. To introduce the methods of dynamic analysis required to study these phenomena.						
Content	Dimension and space. Information and knowledge. Risk and uncertainty. Systems theory. Feedback systems. Price formation and stochastic processes. Linear and nonlinear processes. The vector autoregressive (VAR) model. Forecasting system outputs.						
References							

Theory Topics

Week	Weekly Contents
1	Structure and Functioning of Financial Systems: Foundations of Dynamic Modelling
2	Dimension, State Space, and Time in Dynamical Systems
3	Information, Knowledge, Expectations, and Price Formation in Financial Markets
4	Risk, Uncertainty, and Stochastic Modelling of Financial Prices
5	Systems Theory and Feedback Mechanisms in Financial Systems
6	Linear Dynamical Systems: Equilibrium, Stability, and Dynamic Analysis
7	Nonlinear Dynamics: Chaos, Bifurcations, and Attractors
8	Financial Time Series: Stationarity, Dependence Structures, and Model Specification
9	Vector Autoregressive (VAR) Models: Theoretical Foundations, Estimation, and Diagnostic Testing
10	Dynamic Analysis of VAR Models: Granger Causality, Impulse Response Functions, and Variance Decomposition
11	Forecasting Financial System Outputs and Evaluating Forecast Performance
12	Complex Financial Systems: Leverage, Liquidity, Network Interconnections, and Systemic Risk
13	Modelling Financial Dynamics Using Statistical and Mathematical Software: Applications and Policy Analysis
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