H8FDA: Financial Data Analysis

Module Code:	H8FDA
Long Title	Financial Data Analysis APPROVED
Title	Financial Data Analysis
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	10
Module Coordinator:	Simon Caton
Module Author:	MICHAEL BRADFORD
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	

Learning Outcomes

On successful completion of this module the learner will be able to:

#	Learning Outcome Description
LO1	Investigate core techniques for financial data analysis
LO2	Evaluate and assess models used in financial data analysis
LO3	Utilise analytical models associated with financial data in order to develop strategies for FinTech use cases
LO4	Review current research and research methods to derive meaning from financial data

Dependencies

Module Recommendations

No recommendations listed

Co-requisite Modules

No Co-requisite modules listed

Entry requirements	

H8FDA: Financial Data Analysis

Module Content & Assessment

Indicative Content
Introduction Financial data analysis in FinTech Core use cases Available tools
Linear Time Series Analysis and Its Applications to Financial Data Stationarity Correlation and Autocorrelation White Noise and Linear Time Series Simple AR, MA and ARMA models Seasonality Regression models with Time Series Time Series Errors
Conditional Heteroscedastic Models Noting and detecting volatility Model building ARCH and GARCH Random Coefficient Autoregressive Models Stochastic Volatility Models
Non-linear Models Non-linear Models Tests of non-linearity Modelling Forecasting
Multivariate Time Series Analysis & Its Applications to Financial Data Weak Stationarity and Cross-Correlation Matrices Vector Autoregressive and Moving Average Models Reparameterization Higher Dimensional Volatility Models Factor-Volatility Models Multivariate t Distribution
Micro-structure Models and Pricing Micro-structure measures (e.g. Bid-ask Spreads, Liquidity, etc. Linear and non-linear Models for price changes Options Continuous-Time Stochastics Processes Black Scholes Value at Risk
Markov Chain Monte Carlo Methods Markov Chain Simulation Sampling Stochastic Volatility Models Linear Regression with Time Series Errors Markov Switching Models Missing Values and Outliers

Assessment Breakdown	%
Coursework	50.00%
End of Module Assessment	50.00%

Assessments

Reassessment Requirement
Repeat examination *Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.*

H8FDA: Financial Data Analysis

Module Workload

Module Target Workload Hours 0 Hours

Workload: Part Time

Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	No Description	24	Every Week	24.00
Tutorial	No Description	24	Every Week	24.00
Independent Learning	No Description	202	Every Week	202.00
			Total Weekly Contact Hours	48.00

Module Resources

Recommended Book Resources

Giuseppe Campolieti, Roman N. Makarov.. Financial mathematics, Boca Raton; CRC Press, [ISBN: 1439892423].

Ansgar Steland. Financial Statistics and Mathematical Finance, Wiley, p.432, [ISBN: 0470710586].

Analysis of Financial Time Series, John Wiley & Sons, Hoboken, [ISBN: 0470414359].

John L. Teall. Financial Market Analytics, Quorum Books, p.328, [ISBN: 1567201989.].

Supplementary Book Resources

James Wu, Stephen Coggeshall. Foundations of Predictive Analytics, Chapman and Hall/CRC, p.337, [ISBN: 1439869464.].

Arratia, Argimiro. (2014), Computational Finance: An Introductory Course with R, Atlantis Press, [ISBN: 946239069X].

This module does not have any article/paper resources

This module does not have any other resources

Discussion Note:	