uc3m | Universidad Carlos III de Madrid
Vicerrectorado de Estudios

CALENDARIO DE ACTIVIDADES DE EVALUACIÓN CONTINUA COMUNES A TODOS LOS GRUPOS DE LA ASIGNATURA
CALENDAR OF CONTINUOUS ASSESSMENT ACTIVITIES COMMON TO ALL GROUPS OF THE COURSE

ASIGNATURA - COURSE: Analytical methods for business forecasting

ESTUDIO - PROGRAMME: Data & Business Analytics

SEMANA - WEEK	ACTIVIDADES DE EVALUACIÓN CONTINUA - CONTINUOUS ASSESSMENT ACTIVITIES
Indicar la semana lectiva en la que tendrá lugar la prueba o actividad de evaluación continua y describir en la columna siguiente *Indicate the teaching week in which the continuous assessment activities will take place and describe in the following column*	
Week 1	Introduction to financial time series. Topics: Examples of financial time series, stylized facts, and tools/software for analyzing financial time series.
Week 2	Volatility: Defining and measuring volatility. An introduction to the basic concepts and measurement methods.
Week 3	Continuation on Volatility: Historical volatility, the VIX Index, and realized volatility. Empirical examples and practical insights into how volatility is calculated in financial markets.
Week 4	Modelling Volatility – Part I: Symmetric and asymmetric models of volatility. Discussion on theoretical foundations and applications.
Week 5	Modelling Volatility – Part II: Modelling realized variance and volatility forecasting techniques. **Assignment 1 (20% of the final grade)**
Week 6	Time Series and Machine Learning – Part I: Applying linear and nonlinear regressions to financial time series.
Week 7	Time Series and Machine Learning – Part II: Examples and case studies of realized variance.
Week 8	Time Series and Machine Learning – Part III: Introduction to decision trees for time series.
Week 9	Time Series and Machine Learning – Part IV: Random Forests and Boosting techniques for forecasting realized variance.
Week 10	Time Series and Machine Learning – Part V: Introduction and applications of neural networks for time series analysis.

Week 11	Time Series and Machine Learning – Part VI: Forecasting Realized Variance using advanced techniques. **Assignment 2 (20% of the final grade)**
Week 12	Project Preparation and Industry Applications: Review and integration of forecasting methods; discussion on applications.
Week 13	Final Project Work: Individual consultations, feedback sessions, and project refinement.
Week 14	Final Project Presentations in class. **The final project accounts for 60% of the overall grade.**