F70TS Time Series

COURSE DETAILS
Course Code: F70TS
Full Course Title: Time Series
SCQF Level: 10
SCAF Credits: 15
Available as Elective: No

DELIVERY LEVEL
Undergraduate: Yes  Postgraduate Taught: Yes  Postgraduate Research: No

COURSE AIMS
To introduce students to time series analysis, in particular well known linear models, non-linear models, their probabilistic properties, estimation, model selection, statistical inference and forecasting based on the fitted models, as well as their applications in finance and insurance.

LEARNING OUTCOMES – SUBJECT MASTERY
After studying this course, students should be able to:

• Describe the properties of a time series using basic analytical and graphical tools

• Understand the definitions, properties and applicability of well-known time series models

• Fit time series models to practical data sets and select suitable models

• Carry out simple statistical inference, in particular forecasting, based on the fitted models

• Estimate and remove possible trend and seasonality in a time series

• Analyse the residuals of a time series using stationary models

LEARNING OUTCOMES – PERSONAL ABILITIES
At the end of the module, students should be able to:
F70TS Time Series

- Demonstrate the ability to learn independently
- Manage time work to deadlines and prioritise workloads
- Use an appropriate computer package to process data
- Present results in a way which demonstrates that they have understood the technical and broader issues of time series analysis

SYLLABUS

Classical decomposition

- Stationary processes
- Moving average processes
- Autoregressive processes
- Autoregressive moving average processes
- ARIMA processes
- Model building
- Forecasting
- Other models used in finance and insurance

COURSE RELATIONSHIPS

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<th>Level</th>
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<th>School</th>
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LOCATION AND ASSESSMENT METHODS

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