### COURSE DETAILS

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

### DELIVERY LEVEL

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<th>Undergraduate:</th>
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<th>Postgraduate Taught:</th>
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<th>Postgraduate Research:</th>
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**Additional Information:**

### 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

<table>
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<tr>
<th>Course Code</th>
<th>Level</th>
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<th>School</th>
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<td>F78PA</td>
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<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
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LOCATION AND ASSESSMENT METHODS

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### F70TS Time Series

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