## COURSE DETAILS

**Course Code:** F71TS  
**Full Course Title:** Time Series Analysis  
**SCQF Level:** 11  
**SCAF Credits:** 7.5  
**Available as Elective:** No

## DELIVERY LEVEL

<table>
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<tr>
<th>Undergraduate:</th>
<th>Yes</th>
<th>Postgraduate Taught:</th>
<th>Yes</th>
<th>Postgraduate Research:</th>
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## COURSE AIMS

This half-course aims to provide student with an introduction to time series analysis, including models with applications in finance.

## LEARNING OUTCOMES – SUBJECT MASTERY

On completion of this course the student should be able to:

- demonstrate knowledge of, and a critical understanding of, the main concepts of time series analysis
- demonstrate knowledge of, and a critical understanding of, the main properties of MA, AR, ARMA, ARIMA, and RW models
- use least squares, maximum likelihood and other methods to fit time series models to the data
- select proper model(s) using e.g. AIC or BIC
- fit trend and seasonal trend to the data, and fit time series models to the residuals
- understand methods used to produce forecasts
- understand ARCH, GARCH and other nonlinear time series models and their applications for modelling of financial data
- understand time series data well, and perform basic calculations and summaries of time series data
- understand and critically assess time series models fitted by computer packages
- use a range of time series models to produce forecasts

## LEARNING OUTCOMES – PERSONAL ABILITIES

At the end of the course student should be able to:

- Communicate meaningfully and productively with others (including practitioners and professionals in the financial services industry) on time series analysis issues
- Demonstrate the ability to earn independently
- Manage time, work to deadlines and prioritise workloads
F71TS Time Series Analysis

SYLLABUS

• Basic time series concepts and operators
• Stationary processes, general linear filter, autocorrelation function and spectrum
• MA, AR and ARIMA processes
• ARIMA processes and Random Walk (RW) with or without drift
• Model estimation and model selection
• Models with trend and/or seasonality
• Forecasting
• Introduction to nonlinear processes

COURSE RELATIONSHIPS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</th>
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<tbody>
<tr>
<td>C21FE</td>
<td>11</td>
<td>Financial Econometrics</td>
<td>School of Mgmt &amp; Languages</td>
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LOCATION AND ASSESSMENT METHODS

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<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
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<th>Dub</th>
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<th>COLL</th>
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<td>Reassessment</td>
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Examination will be at least 60% and no more than 80%.
Re-assessment in the next academic year.

Coursework will be at least 20% and no more than 40%.

|     |     |     |     |     |     |     | Coursework | 40 | Assessment | Semester 2 |           |           |           |           |           |

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