**COURSE DETAILS**

**Course Code:** F79MB  
**Full Course Title:** Statistical Models B  
**SCQF Level:** 9  
**SCAF Credits:** 15  
**Available as Elective:** No

**DELIVERY LEVEL**

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

**COURSE AIMS**

In this module students will

- develop the ability to understand and solve practical statistical problems  
- learn how to choose appropriate statistical techniques in order to analyse data  
- learn to use an appropriate computer package to implement the relevant statistical techniques  
- develop report writing and presentation skills  
- develop independent research skills

**LEARNING OUTCOMES – SUBJECT MASTERY**

After studying this module, students should be able to:

- Construct statistical models appropriate to practical problems  
- Understand, select and use appropriate graphical and summary techniques for exploratory data analysis  
- Understand in detail the issues involved in the modelling of continuous response variables with one or more explanatory variables, with particular regard to model selection and fitting and diagnostic procedures  
- Understand the theory and techniques for the analysis of categorical data  
- Choose appropriate techniques, e.g. generalised linear models, to analyse categorical data and present results  
- Be able to write clear, concise and well-structured reports involving the application of the above skills to practical data-analytic problems.

**LEARNING OUTCOMES – PERSONAL ABILITIES**

At the end of the module, students should be able to:
F79MB Statistical Models B

- Demonstrate the ability to learn independently
- Manage time, work to deadlines and prioritise workloads
- Summarise and explain in writing the application of statistical modelling to practical problems and understand the usefulness of statistical modelling in industry (and particularly in the actuarial profession)
- Present investigation results in a way that demonstrates that they have understood the technical and broader issues related to the application of statistical modelling methods
- Use statistical techniques and appropriate computing techniques to solve practical problems and to present the solution of these problems appropriately to both technical and non-technical audiences

SYLLABUS

- Checking the fit of distributions to data
- Non-parametric estimation
- Linear models
- Generalised Linear Models
- Single classifications
  - Binary classifications
  - Qualitative categories
  - Ordered categories
  - Goodness-of-fit tests for frequency distributions
  - Residuals
- Applied statistical project

COURSE RELATIONSHIPS

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

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