F79MB Statistical Models B

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

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

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

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<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</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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