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

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>
<thead>
<tr>
<th>Course Code</th>
<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>F78PA</td>
<td>8</td>
<td>Probability and Statistics A</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
</tr>
<tr>
<td>F78PB</td>
<td>8</td>
<td>Probability and Statistics B</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
</tr>
<tr>
<td>F79MA</td>
<td>9</td>
<td>Statistical Models A</td>
<td>School of Math and Comp Sci.</td>
<td>Taught Synoptic</td>
</tr>
</tbody>
</table>

LOCATION AND ASSESSMENT METHODS

<table>
<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
<th>Ork</th>
<th>Dub</th>
<th>Malay</th>
<th>IDL</th>
<th>COLL</th>
<th>ALP</th>
<th>OTH</th>
<th>Method</th>
<th>Weight</th>
<th>Exam Mins</th>
<th>Type</th>
<th>Diet</th>
<th>Synoptic Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>100</td>
<td>Assessment</td>
<td>Semester 2</td>
<td>F79MA</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>100</td>
<td>Reassessment</td>
<td>Semester 3</td>
<td>F79MA</td>
<td></td>
</tr>
</tbody>
</table>