COURSE DETAILS

Course Code: F78SC
Full Course Title: Statistics for Science
SCQF Level: 8
SCAF Credits: 15
Available as Elective: No

DELIVERY LEVEL

Undergraduate: Yes  Postgraduate Taught: No  Postgraduate Research: No

COURSE AIMS

- To develop an understanding of standard statistical techniques applied in the sciences including confidence intervals, hypothesis tests, and regression models
- To develop proficiency in applying these methods in the analysis of experimental data using standard statistical packages

LEARNING OUTCOMES – SUBJECT MASTERY

After studying this module, students should be able to:

- Understand the application of statistical testing and regression in a scientific context
- Apply these methods to investigate practical problems in a scientific context
- Use their statistical expertise to draw valid conclusions from experimental data

LEARNING OUTCOMES – PERSONAL ABILITIES

At the end of this module students should be able to:

- Demonstrate facility with an appropriate statistical package
- Demonstrate an appreciation of the scientific problems to which statistical methods can be applied
- Present results from a statistical analysis in a way that demonstrates that they have understood the technical and broader issues of statistical methodology as applied in practical situations
- Manage time in order to meet report deadlines and to discuss statistical problems confidently with peers and colleagues

SYLLABUS

Probability: Addition law, complementary events, independence, conditional probability, Bayes rule

Page 1 of 2
F78SC Statistics for Science

Probability distributions: Binomial and Normal distributions

Statistical tests: Central Limit Theorem, confidence intervals for means and differences, hypothesis testing, t test, chi square tests.

Regression: Principal Linear regression, introduction to ANOVA, Pearson correlation, assays, non-linear regression.

**COURSE RELATIONSHIPS**

N/A

**LOCATION AND ASSESSMENT METHODS**

<table>
<thead>
<tr>
<th>Edl</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>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>60</td>
<td>120</td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>100</td>
<td>120</td>
<td>Reassessment</td>
<td>Semester 3</td>
<td></td>
</tr>
</tbody>
</table>