Module Code: STU33002

Module Name: Statistical Analysis III

ECTS Weighting: 5 ECTS

Semester taught: Semester 2

Module Coordinator/s: Susan Connolly

Module Learning Outcomes:

On successful completion of this module, students will be able to:

LO1. Understand and put into practice merging and cleaning of datasets
LO2. Understand and put into practice use of inbuilt and user written functions
LO3. Understand the graphics capabilities of R and use these methods to visualise data and create reports
LO4. Understand Optimisation of methods and use these tools in R
LO5. Understand the use of Generalized linear models and their application to different data types
LO6. Special topic: Classification / Bootstrapping / Association Rules

Module Content:

This module aims to provide an opportunity for students to develop their hands on skills in data analysis. Specific methods will be explored to illustrate these approaches. Students will become very familiar with the R statistical computing language. After this course, students will have a toolbox of skills for data analysis. In particular, students should be able to apply their statistical knowledge to a given real scenario, do analysis and make recommendations.

Teaching and Learning Methods:

1 hour lecture and 2 hours of lab per week

Lectures will introduce theory, methods, and examples. Labs will put these methods into practice in R Studio.

Assessment Details:

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Brief Description</th>
<th>Learning Outcomes Addressed</th>
<th>% of total</th>
<th>Week set</th>
<th>Week due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Work</td>
<td>In-lab assessments</td>
<td>all</td>
<td>40%</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Project</td>
<td>Assigned project</td>
<td>all</td>
<td>60%</td>
<td>27</td>
<td>32</td>
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</tbody>
</table>

Reassessment Details:

Reassessment is by an assigned project.

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1 TEP Glossary
2 TEP Guidelines on Workload and Assessment
### Contact Hours and Indicative Student Workload

<table>
<thead>
<tr>
<th>Contact Hours (scheduled hours per student over full module), broken down by:</th>
<th>31 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>11 hours</td>
</tr>
<tr>
<td>Laboratory</td>
<td>20 hours</td>
</tr>
<tr>
<td>Tutorial or seminar</td>
<td>0 hours</td>
</tr>
<tr>
<td>Other</td>
<td>0 hours</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent study (outside scheduled contact hours), broken down by:</th>
<th>44 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation for classes and review of material (including preparation for examination, if applicable)</td>
<td>11 hours</td>
</tr>
<tr>
<td>Completion of assessments (including examination, if applicable)</td>
<td>33 hours</td>
</tr>
</tbody>
</table>

| Total Hours | 75 hours |

### Recommended Reading List


R for Data Science (available free online at [https://r4ds.had.co.nz/](https://r4ds.had.co.nz/))

### Module Pre-requisites

**Prerequisite modules:**

**Other/alternative non-module prerequisites:**

### Module Co-requisites

### Module Website

Last Update

04/10/2019 by Susan Connolly