Module Code | STU11002
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Module Name | Statistical Analysis I
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. Explain the nature of data
- LO2. Generate appropriate descriptive statistics
- LO3. Illustrate data with appropriate graphical techniques
- LO4. Calculate simple probabilities
- LO5. Understand how various statistical distributions are used
- LO6. Select a random sample
- LO7. Create estimates and confidence intervals of population parameters from samples
- LO8. Carry out and interpret the results of statistical tests including
  - a. Independent t-tests
  - b. Chi-square test
- LO9. Explain the ideas behind simple linear regression
- LO10. Explain the ideas behind methods for estimation of standard error, including bootstrap
- LO11. Explain the use of simulation studies in statistical analysis

**Module Content**
The aim of the course is to introduce the students to basic statistical concepts. In this module students will learn how to explain basic statistical theory and apply the techniques to data. Students will be able to describe and interpret the results of their analyses in a detailed fashion. There will be considerable emphasis on the use of R studio to analyse data.

**Teaching and Learning Methods**
2 hours of lectures and 1 hour of labs 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>Examination</td>
<td>Written examination</td>
<td>All</td>
<td>80%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Lab Work</td>
<td>In-lab assignments</td>
<td>All</td>
<td>20%</td>
<td>n/a</td>
<td>n/a</td>
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</tbody>
</table>

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1 [TEP Glossary](#)
2 [TEP Guidelines on Workload and Assessment](#)
In the supplemental examinations, assessment is by written examination only, accounting for 100% of the overall mark.

<table>
<thead>
<tr>
<th>Contact Hours and Indicative Student Workload</th>
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</thead>
<tbody>
<tr>
<td><strong>Contact Hours (scheduled hours per student over full module), broken down by:</strong></td>
</tr>
<tr>
<td>Lecture</td>
</tr>
<tr>
<td>Laboratory</td>
</tr>
<tr>
<td>tutorial or seminar</td>
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<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>Independent study (outside scheduled contact hours), broken down by:</strong></td>
</tr>
<tr>
<td>preparation for classes and review of material (including preparation for examination, if applicable)</td>
</tr>
<tr>
<td>completion of assessments (including examination, if applicable)</td>
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<tr>
<td><strong>Total Hours</strong></td>
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R for Data Science (available free online at [https://r4ds.had.co.nz/](https://r4ds.had.co.nz/))

**Module Pre-requisites**

**Prerequisite modules:** none

**Other/alternative non-module prerequisites:** none

**Module Co-requisites**

none

**Module Website**

04/10/2019 by Susan Connolly