Module Code | STU12502
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Module Name | Introduction to Statistics II
ECTS Weighting | 5 ECTS
Semester taught | Semester 2
Module Coordinator/s | Arthur White

**Module Learning Outcomes**

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

- LO1. **Strongly grasp of the fundamental statistical ideas of significance tests and confidence intervals, which underpin statistical analysis;**
- LO2. **Apply simple statistical methods to practical problems involving two groups or contingency tables;**
- LO3. **Apply simple statistical methods to practical problems involving multiple groups or explanatory variables;**
- LO4. **Explain why statistical methods are so widely applied in both the natural and social sciences, engineering and business;**
- LO5. **Develop their knowledge of more advanced statistical ideas and methods.**

**Module Content**

To introduce students to the elementary ideas of statistical inference and the use of simple statistical methods in practical situations. Topics include:

- statistical variation;
- parameter estimation;
- statistical tests and their properties;
- design and analysis of simple comparative studies for both binary and continuous variables;
- introduction to Analysis of Variance (ANOVA), regression and contingency tables.

**Teaching and Learning Methods**

Two lectures and one tutorial per week. I intend to hold computer labs in place of the second lecture in weeks 3, 6, 9 and 12 of term. Tutorial problems will be handed out in the preceding lectures.

**Assessment Details**

The final mark is either the examination mark or a weighted average of examination and coursework, whichever is higher.

<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>2 hour examination</td>
<td>LO1, LO2, LO3</td>
<td>80%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>Problem sets</td>
<td>LO1, LO2</td>
<td>10%</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>Problem sets</td>
<td>LO3</td>
<td>10%</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

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1 TEP Glossary
2 TEP Guidelines on Workload and Assessment
Examination (2 hours, 100%)

Contact Hours and Indicative Student Workload

<table>
<thead>
<tr>
<th>Contact Hours (scheduled hours per student over full module), broken down by:</th>
<th>33 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>lecture</td>
<td>18 hours</td>
</tr>
<tr>
<td>laboratory</td>
<td>4 hours</td>
</tr>
<tr>
<td>tutorial</td>
<td>11 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>72 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>preparation for classes and review of material (including preparation for examination, if applicable)</td>
<td>41 hours</td>
</tr>
<tr>
<td>completion of assessments (including examination, if applicable)</td>
<td>42 hours</td>
</tr>
</tbody>
</table>

Total Hours 116 hours

Recommended Reading List

Extensive handouts (amounting to a course text) will be provided. The following text is suggested for supplemental reading. The book is quite discursive, as it is oriented to a general, rather than a specifically mathematically oriented student readership.


Module Pre-requisites

Prerequisite modules: STU12501

Other/alternative non-module prerequisites: knowledge of elementary probability, especially the normal distribution, expectation and variance.

Module Co-requisites

Module Website

https://www.scss.tcd.ie/~arwhite/Teaching/STU12502.html

Last Update

17/07/2019 by Arthur White