Introduction to Statistics II
(JF Maths, TSM)

[Life] is a tale
Told by an idiot, full of sound and fury
Signifying nothing.

– Macbeth (Act 5, Scene 5, lines 26–28)

**Lecturer:** Arthur White (Discipline of Statistics, School of Computer Science and Statistics.)

**Requirements/prerequisites:** ST1251.

**Duration:** 12 weeks.

**Contact hours:** 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.

**Coursework:** Two take-home assignments carrying 20% of final grade, if the combined CW/exam mark improves the end-of-year examination mark.

**End of year examination:** The module will have a two-hour examination which will involve answering three compulsory questions.

**Description:** This course is an introduction to statistical ideas and methods. The fundamental concepts are introduced in the context of a series of practical problems of varying complexity. The theory will be illustrated by examples from biology, engineering, industry, medicine and the social sciences.

Topics covered by ST1252 will include:

• Statistical variation and parameter estimation;
• Statistical tests and their properties;
• Design and analysis of comparative studies for both binary and continuous variables;
• Introductions to Analysis of Variance (ANOVA), regression and contingency tables.

**Texts:** I will provide chapter notes and supporting materials during the module, and these will be made available online also. Print copies of the chapter notes are available on request. The problems are typically taken from old examination papers and so they are the best guide to what you are required to know at the end of the year. The problems will be solved by the class tutor during tutorials. (If you are looking for old exams and problems, it is worth mentioning that before 2009, ST1251 and ST1252 were previously taught as a single course over two semesters and described as 151 on the examination papers part of the TCD local website.)

The course chapter notes are similar to much of the material contained in the following reference, and were written by the same author. While the material was written for chemists, you may still find many of the concepts and examples useful.


The following is a good general reference. The book is quite discursive, as it is oriented to a general, rather than a specifically mathematically oriented student readership. The course is not based on the book, but it does provide a second view on what statistics is about, and it contains many interesting examples from a variety of disciplines.


Another book which you may like to consult for additional reading:


**Online handouts:** Chapter notes, tutorial, lab and assignment handouts will be put up on the web after lectures, on the class homepage: [https://www.scss.tcd.ie/~arwhite/Teaching/ST1252.html](https://www.scss.tcd.ie/~arwhite/Teaching/ST1252.html).

**Office hours:** This semester I will keep an office hour from 10-11 a.m. on Fridays. If that does not suit then email is the best way to arrange a meeting. My office is room 144 in the Lloyd Institute, on the first floor almost directly opposite to the main entrance to the building.

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1Written by Eamonn Mullins, to whom many thanks.