I returned, and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all.

- Ecclesiastes 9:11, King James Bible.

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

Requirements/prerequisites: None.

Duration: 12 weeks.

Contact hours: Two lectures and one tutorial per week. Computer labs will be held in place of the second lecture in weeks 5 and 9 of term.

Coursework: 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 probability models and statistical ideas. The fundamental concepts are introduced in the context of a series of practical problems of varying complexity.

Topics covered by ST1251 will include:

- Elementary probability ideas;
- Discrete probability models, including binomial, hypergeometric, geometric, Poisson;
- Expectations and variances of random variables;
Continuous distributions including normal, uniform and exponential;

• Combining random variables and sampling distributions.

**Texts:** I will provide many handouts and problem sheets during the course, and these will be made available online also. 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 following is a good general reference, although the author takes a more rigorously mathematical approach than what will be covered in class. The course is not based on the book, but it does provide a second view of the material that will be covered. Note that the book’s readers, as the title states, are expected to be those who are comfortable with mathematics rather than those following a mathematical career.


**Online handouts:** Handouts will be put up on the web after lectures, on the class homepage: [https://www.scss.tcd.ie/~arwhite/Teaching/ST1251.html](https://www.scss.tcd.ie/~arwhite/Teaching/ST1251.html).

**Visiting students:** If you are a visiting student who will be unable to attend the ST1251 exam in the summer, please let me know as soon as possible. Several arrangements are possible and it is important to confirm with your university which of these are suitable.

**Office hours:** I will keep an office hour from 10-11 am on Wednesdays. If that does not suit and you need to contact me, then email is best. My office is room 144 in the Lloyd Institute; it is on the first floor, almost directly opposite to the main entrance to the building.

Arthur White  
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