



Statistics Tatauranga

"I have always been interested in applying my theoretical knowledge. In my studies, I saw so many different applications of Statistics. It amazes me how useful one subject can be and in how many different areas it can be used."

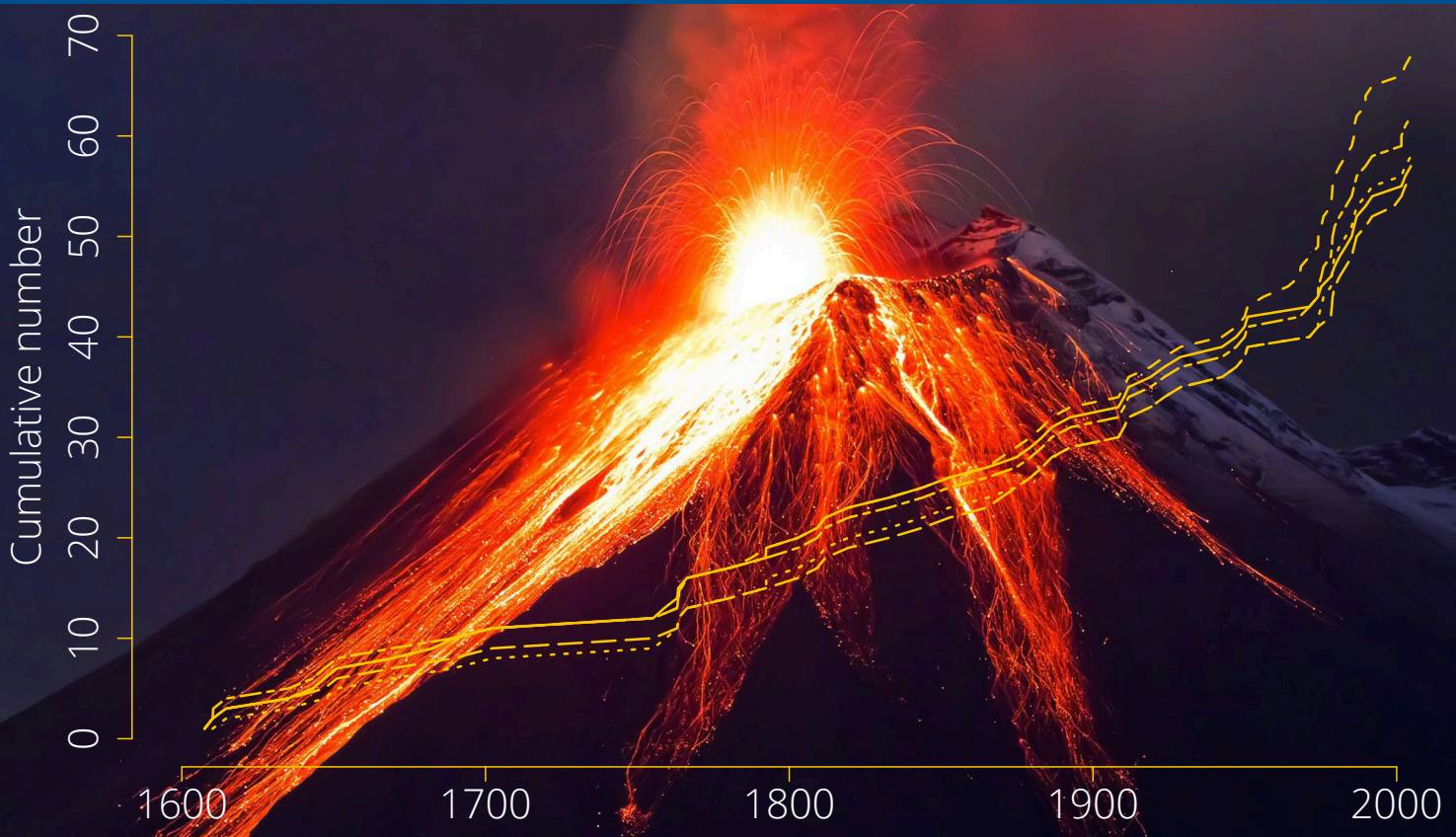
Janine Wright

Numbers count

Statisticians can be thought of as explorers finding information in data. They collect, analyse and interpret data to help researchers and decision-makers. The collaborative nature of statistics is one of its most rewarding features.

Statisticians also design and carry out research. They rely on computational skills, quantitative abilities, analytical reasoning and communications skills. At Otago, the Statistics Group works in ecology, bioinformatics, biostatistics, quantitative genetics and on problems such as disease spread and seismic and volcanic hazards.

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Why study Statistics?

Statistics is a discipline concerned with understanding patterns and relationships in data in the presence of variation and uncertainty. How do we discover the “truth” or signal hidden in the noise?

- You can use statistics to solve real-world problems.
- You work with researchers from many disciplines.
- Statisticians are key contributors to decision-making in business and government.
- Statistics will help you understand your chosen area of study. If you specialise in chemistry, psychology, health sciences, or economics and finance you will need to collect and interpret data.
- Statisticians are in short supply. You will improve your employment opportunities.

Background required

Almost any school background will allow entry to a Statistics programme. Because you will need to study at least one first-year Mathematics paper, senior secondary school NCEA mathematics to Level 3 standard is highly recommended.

Career opportunities

Anywhere data are collected, analysed or interpreted, you find people with statistical training. Because the world is becoming more and more data-focused, the demand for graduates has outstripped supply.

Statisticians use computational skills, statistical knowledge, quantitative abilities and communications skills to help make decisions in the face of uncertainty.

Examples include evaluating the environmental effects of air, water, and soil pollutants, and designing and analysing studies to determine whether new drugs and medical procedures are safe and effective.

By working in statistics, you can combine your interest with almost any other field in science, technology, or business.

In New Zealand, statisticians are employed in Crown Research Institutes, government departments such as Inland Revenue, ACC, and DOC, and companies such as Fonterra, Meridian Energy, and Spark.

What will I study for a Statistics major?

In order to complete a Statistics major within three years of University study, you need to complete a Statistics paper (for example, STAT 110 Statistical Methods) in your first year. We encourage all students majoring in Statistics to also take papers in another field of interest to them, be it Arts, Science or Commerce. Having knowledge of an area of application is extremely useful, and data are virtually everywhere!

In the Statistics programme you learn:

- How to design research studies and collect reliable data.
- How to build thoughtful statistical models which allow us to understand the key features in a complex system.
- How to use the statistical models to answer research questions.
- How to produce informative and engaging graphical representations of data.
- The mathematical underpinnings of statistics.
- The computation skills necessary to do all these things.
- Skills in communicating statistical concepts and analyses to a range of audiences.

Honours degree

A student with a BSc or BA in Statistics can extend their knowledge by studying for this extra one-year degree consisting mostly of 400-level papers and a research project. An

honours degree is the standard qualification for entrance to a PhD programme, both in New Zealand and overseas.

Combined degrees

Combined degrees are a popular choice at undergraduate level. Statistics is a natural major to go with a BAppSc in Data Science. Statistics can also be combined as a double degree with Commerce subjects such as Finance or Marketing Management.

Another option is to take Statistics as a double major within either the Arts or Sciences programmes – you could usefully combine Statistics with social sciences such as Sociology or Politics (this would be a BA double major or a major/minor) or you could combine it with life sciences such as Genetics, Zoology or Plant Biotechnology (as a BSc double major or major/minor).

The breadth of possibilities gives you an indication of just how flexible and versatile Statistics really is.

For questions about
Statistics
otago.ac.nz/statistics



PROFILE

Claire Flynn Bachelor of Science with Honours (Statistics) | Meteorologist, MetService

“Part way through my third year I talked to some people from the MetService Te Ratonga Tiorangi – they were at Otago for a Science Careers Fair. They told me about their training programme for graduates, and recommended I add in some extra Physics papers and give them a call when I finished my degree!

“Maths and Statistics are really important because computer weather models will inevitably be imperfect. You need strong Maths and Stats skills to understand where the models are going wrong and how to improve them.

“After a year as a trainee meteorologist, you become an intern meteorologist, working through the three sections of the MetService

for two years each – public forecasting, aviation, forecasting and marine forecasting.

“At the moment, I’m working in the public forecasting section which involves a lot of work with media. For example there’s been an emergency and journalists are wanting some more background understanding about how the weather has contributed to what’s happened. We get a lot of calls from the public as well.

“It’s worth having a go at Maths papers at university; it really enhances your problem-solving skills. The class sizes are small, the staff are really friendly and approachable, there are heaps of good tutorials and the department really looks after everyone.”

