

Medical Statistics

Postgraduate Handbook 2018



THE UNIVERSITY OF
AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

SCIENCE
DEPARTMENT OF STATISTICS

Welcome to Medical Statistics

Welcome to the Medical Statistics specialisation, taught by the Department of Statistics.



Healthcare and medical research are important fields for statisticians in New Zealand and internationally. The Department of Statistics has developed two postgraduate degrees in Medical Statistics to help students learn the most relevant areas of theory and methods, and to demonstrate their training to prospective employers.

Our graduates have excellent career prospects and are qualified for jobs across the field of medical statistics: in universities, hospitals, district health boards, consulting firms, pharmacies, and the biotech industry.

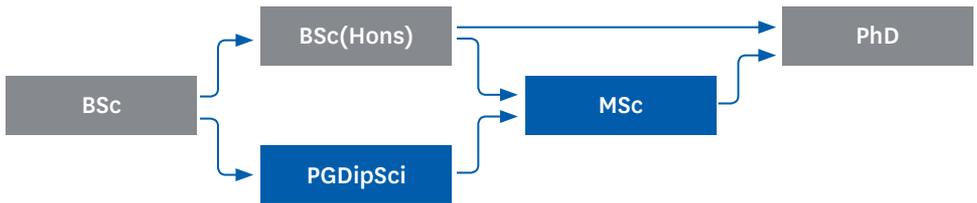
In addition to the two specialised degrees, the department provides courses and research options in Medical Statistics in our BSc(Hons) and PhD programmes in Statistics. If you decide you are interested in joining our postgraduate programme in Medical Statistics, we would love to hear from you.

THOMAS LUMLEY
Professor of Biostatistics

Birthplace of 



Postgraduate study options in Medical Statistics



Medical Statistics is the part of medical and public health research that handles quantitative evidence. Statistical techniques are important for designing and planning research projects, and for disentangling the contributions of multiple causes of disease, ranging from the social environment to the genome.

Taught courses include an introduction to medical statistics, statistical inference, mixed models, statistical consulting, epidemiology, clinical epidemiology and evidence-based healthcare.

A dissertation is required for the masters programme.

Bachelor of Science (Honours) (BSc(Hons)) in Medical Statistics

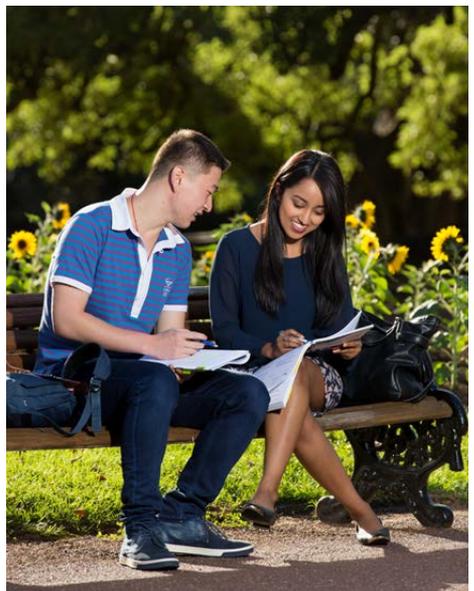
The Bachelor of Science (Honours) is a prestigious qualification that prepares students for entry to the masters programme and can provide a suitable basis for PhD study.

Prerequisites

- A bachelors degree with a major in Statistics or equivalent, with at least three Statistics courses above Stage II, and STATS 210 or STATS 225
- A grade point average (GPA) of at least 5.5 in 90 points above Stage II, including at least 45 points in Statistics

Requirements:

- 75 points: STATS 770, 773, 781, POPLHLTH 708
- 15 points from STATS 779, 782, or equivalent
- 30 points from 600 or 700-level courses in Statistics or related subjects, as approved by the Head of Department





Master of Science (MSc) in Medical Statistics

The masters degree in Medical Statistics at the University of Auckland is a one-year taught programmes that follows a postgraduate diploma or an honours degree (or the equivalent).

Compared to the taught MSc in Statistics, the degree in Medical Statistics has the same workload and level of rigour, but more structure in the choice of courses. It provides a coherent programme that covers health research concepts and statistical methods important in medical research, and a qualification that allows employers to recognise this training.

Postgraduate Diploma in Science (PGDipSci) majoring in Medical Statistics

This diploma is designed for candidates who have a bachelors degree that includes a substantial proportion of statistics, and who want a one-year postgraduate qualification specialising in statistics for medical and health research. The PGDipSci provides the option of a further year leading to a masters degree in Statistics or Medical Statistics.

Prerequisites

- A bachelors degree majoring in Statistics or equivalent, including at least three Statistics courses at Stage III or above, with a GPA of at least 2.5 and STATS 210 (or STATS 225, or an equivalent)
- If your academic background does not satisfy this requirement, there are bridging options that you can discuss with a Graduate Officer for Statistics (office@stat.auckland.ac.nz).

Requirements:

- 45 points: POPLHLTH 708, STATS 770, 773
- 15 points from STATS 779, 782 or equivalent
- At least 30 points from STATS 701-787, BIOINF 704, POPLHLTH 707-709, 711, 767
- Up to 30 points from 700-level courses in Statistics or related subjects, as approved by the Head of Department

Prerequisite

- Students from the University of Auckland must have completed a PGDipSci, PGDipArts, BSc(Hons) or BA(Hons) degree in Statistics with a GPA of at least 4.0
- Other students must have a comparable qualification

Requirements:

Taught Masters

- 30 points: STATS 790 Masters Dissertation 1
- 45 points: STATS 732, 768, 780
- At least 15 points from BIOINF 704, POPLHLTH 707-709, 711, 767, STATS 701-705, 710-787
- Up to 30 points from 700-level courses in Statistics or related subjects, as approved by the Head of Department



Doctor of Philosophy (PhD)

The PhD degree in Statistics is intended to train students to be able to undertake research in statistics and its more advanced applications. The work done should result in the preparation of a thesis based on original research that makes a significant contribution to the area of specialisation. There is no separate qualification in Medical Statistics; the PhD in Statistics covers all areas.

Prerequisites:

- Graduates of New Zealand universities admitted to our PhD programme usually have a masters or BSc(Hons) degree awarded with First Class Honours or Second Class, Division One Honours.
- For international candidates, we look for evidence of similar ability. A masters degree is required in most cases.
- We normally require a background in statistics with good supporting mathematics. We are happy to consider applicants with interests in a statistical topic and thorough background in the area of application; additional coursework in statistics and computing may be needed.
- Some of our research students take PhDs in cross-disciplinary areas involving another subject (e.g. a medical discipline) and applied statistics. These PhDs typically have two supervisors, one from Statistics and one from another department of the University.

Quick facts

Points per degree: 360 points

Full-time study: 3-4 years

Part-time study: 6-8 years

Degree structure: Research

Application closing dates: Apply at any time

Start date: Start at any time

For more information, go to

www.science.auckland.ac.nz/phd

For a searchable database where you can find masters and doctoral supervisors and research projects visit www.findathesis.auckland.ac.nz

Postgraduate Statistics courses		
Course code	Title	Semester
STATS 701	Advanced SAS Programming	S1
STATS 705	Topics in Official Statistics	S2
STATS 710	Probability Theory	S1
STATS 721	Special Topic in Applied Probability	S2
STATS 722	Financial Mathematics	S2
STATS 723	Stochastic Methods in Finance	S1
STATS 726	Time Series	S2
STATS 727	Special Topic in Time Series	S2
STATS 730	Statistical Inference	S1
STATS 731	Bayesian Inference	S1
STATS 732	Introduction to Statistical Inference	S1
STATS 740	Sample Surveys	S1
STATS 741	Special Topic in Sampling	S1
STATS 747	Statistical Methods in Marketing	S2
STATS 750	Experimental Design	S1
STATS 760	A Survey of Modern Applied Statistics	S1
STATS 761	Mixed Models	S2
STATS 762	Special Topic in Regression	S1
STATS 766	Multivariate Analysis	S2
STATS 768	Longitudinal Data Analysis	S2
STATS 769	Advanced Data Science Practice	S2
STATS 770	Introduction to Medical Statistics	S1
STATS 773	Design and Analysis of Clinical Trials	S2
STATS 779	Professional Skills for Statisticians	S1
STATS 780	Statistical Consulting	S2
STATS 782	Statistical Computing	S2
STATS 784	Statistical Data Mining	S2
STATS 785	Topics in Statistical Data Management	SS, S2
POPPLTH 707	Statistics in Health Science 2	S2
POPPLTH 708	Epidemiology	S2
POPPLTH 709	Evidence for Best Practice	S1
POPPLTH 711	Systematic Reviews and Meta-analysis	S2
POPPLTH 767	Health Services Research Methods	S1

For course descriptions and more information, go to www.stat.auckland.ac.nz/courses

Careers in Medical Statistics

In New Zealand most medical statisticians are employed by universities, hospitals, and district health boards, with smaller numbers in the pharmaceutical and biotech industries. With experience, medical statisticians can progress to independent consulting and to leadership roles in research groups.

Academic statistical research

Academic medical and population health research

Clinical research support in universities or hospitals

Healthcare analytics and management

Government statistics

"I've always been good with numbers. I majored in Chemistry and Statistics in my BSc. My interest in the medical world led me to specialise in Medical Statistics at postgraduate level. It's rewarding knowing that Medical Statistics helps to improve lives and make people healthier."

"My favourite part of statistics is being able to communicate technical ideas to a range of people. It's satisfying being able to play with data and tell a story from it."

"Medical Statistics involves the development and application of statistical techniques to scientific research in health-related fields. Whenever there is data that needs to be collected, analysed or reported on, there is a need for biostatistical support."

"I would love to work as a biostatistician working with medical data, and eventually move into consulting."

"I'm fortunate to work full-time as a risk analyst while studying my masters part-time. Getting real-world experience has definitely changed the way I learn at University and has opened my eyes to the endless opportunities that Statistics brings."

Subarna Sivarajah is studying for a Master of Science specialising in Medical Statistics.



Helpful information

Academic dates

www.auckland.ac.nz/dates

Accommodation

www.accommodation.auckland.ac.nz

Apply for postgraduate study

www.auckland.ac.nz/applynow

Career Development and Employment Services

www.cdes.auckland.ac.nz

Childcare

www.auckland.ac.nz/childcare

Course advice and degree planning in Science

www.science.auckland.ac.nz/student-centre

Disability Services

www.disability.auckland.ac.nz

How to enrol

www.auckland.ac.nz/enrolment

Information for postgraduate students

www.postgraduate.ac.nz

International students

www.international.auckland.ac.nz

Libraries and Learning Services

www.library.auckland.ac.nz

Māori and Pacific students

www.science.auckland.ac.nz/tuakana

Need help?

www.askauckland.ac.nz

Postgraduate Students' Association

www.pgsa.org.nz

Rainbow Science Network for LGBTI students

www.science.auckland.ac.nz/rainbowsience

Scholarships and awards

www.scholarships.auckland.ac.nz

www.auckland.ac.nz/fees

Support for students

www.science.auckland.ac.nz/support

**Questions about Statistics?
office@stat.auckland.ac.nz**

Disclaimer

Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only for students and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the University of Auckland Calendar, to ensure that they are aware of and comply with all regulations, requirements and policies.



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Web: www.stat.auckland.ac.nz



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