UNSW SYDNEY | Australia's Global University

UNSW Medicine Postgraduate Programs in Health Data Science

Top World Ranking

45th

UNSW Sydney is ranked 45th in the 2018 QS World Universities Rankings

Leader in Education

Go8

UNSW is a member of the prestigious Group of Eight – a coalition of Australia's leading research intensive universities

Best and Brightest

BEST AND BRIGHTEST

Attracting the brightest students who can learn alongside world leading researchers

Delivered by Health Big Data Experts

CONTRIBUTING TO HEALTH AND WELFARE

Opportunities for research and internship in industry and government

Flexible Professional Training

DESIGNED FOR WORKING PROFESSIONALS

Expanding career opportunities with new training and up-skilling

Contents

Welcome from the Dean

It is my pleasure to introduce you to Medicine at UNSW Sydney (The University of New South Wales). UNSW Medicine is one of the world's top 50 medical faculties and attracts brilliant people from around the world. Our students learn alongside world-leading researchers, clinicians, industry and government-based experts. They also are an intrinsic part of the Faculty's close affiliation with the nation's finest hospitals, research institutes and health care organisations.

UNSW Medicine recognises that its students must be alive to rapid innovation so as to meet the formidable global, national and local challenges that human disease continues to impose on society. To improve patient care, UNSW Medicine is changing the way medicine is taught and practised; it is also questioning traditional forms of healthcare delivery. If we are to capitalise on new technologies we must be able to understand their potential and their limitations. Graduates of this program will be equipped with the key skills needed to transform data into action so as to enhance the health and well-being of Australians and the global community.

At the Centre for Big Data Research in Health, UNSW Medicine welcomes you to our global community. We are committed to helping you develop the knowledge, skills and values necessary to further your career and welcome you most warmly.

Professor **Rodney Phillips**
Dean, UNSW Medicine

Welcome from the Director

Welcome to the Health Data Science prospectus, a guide to the programs on offer at UNSW Medicine with the Centre for Big Data Research in Health – a world-first centre dedicated to health research using big data.

The Master of Science, Graduate Diploma and Graduate Certificate in Health Data Science are the first Australasian postgraduate programs in Health Data Science – an exciting discipline that spans the domain areas of health and medicine, mathematics, statistics and computer science. The Health Data Science programs aim to equip graduates with the essential cognitive, analytical and communication skills needed to make sense of health big data.

"Big data" have no agreed definition, but the term is generally applied to data that by virtue of their size and/or complexity pose challenges to traditional methods for management and analysis. In health, such data include the millions of records that are generated routinely by health services, real-time clinical data captured at the point-of-care, genomic and imaging data produced in research and clinical settings, and health-related data generated by the population at large through technologies such as wearable devices and social media. How we make use of this data and transform it into action to better support clinical care, inform health policy and improve population health has never been more important than now.

We sit at a key point in history, where big data are poised to become a dominant driver in what happens in health and healthcare. We have designed our programs in response to a significant and growing gap in the global health workforce: skilled data scientists who understand the context of health and can apply data analytics to drive health improvement.

In these programs, students are exposed to real-world problems and are taught the latest analytical methodologies to derive solutions.

A major feature of the learning experience is a novel social online community giving students opportunities to interact with peers and instructors from diverse backgrounds and workplaces.

The Health Data Science programs will provide pathways into a wide range of health analytics-based careers, or for existing professionals will allow you to understand health big data and use it in your work.

This is an exciting time to become a Health Data Scientist, we welcome you to join us on the journey.

Professor **Louisa Jorm**
Director, Centre for Big Data Research in Health

Healthcare needs Health Data Scientists

THE DATA DELUGE

4.4 TRILLION GB

The total amount of data produced in human history up to the year 2013

115,400,000

The number of wearable fitness trackers sold worldwide in 2017

75 DAYS

How long it takes for global health data to double in size

44 TRILLION GB

The total amount of data humans will have produced by 2020. If that much info was contained in a string of USB each storing 128GB, it would reach the moon and back almost 25 times

NEED FOR BIG DATA ANALYTICS IN HEALTH

2.5 X

The rate Indigenous Australians are admitted to hospitals compared to non-Indigenous Australians - a problem Health Data Scientists at UNSW are working to address

11 MILLION

The number of recorded hospitalisations in Australia in 2016-2017

195.8 MILLION

The number of prescriptions issued in Australia in 2016-2017

1 YEAR

How long it can take for infectious disease researchers to gain access to death certificates, which seriously hinders our ability to respond to new epidemics

HEALTH DATA SCIENTISTS IN DEMAND

#1

Where career experts Glassdoor.com ranked data scientist in their US job rankings for 2016, 2017 and 2018, based on job satisfaction, number of job openings and salary

#2

The ranking for statistical analysis and data mining on LinkedIn's Most In-Demand Hard Skills list

1.7 MILLION

The estimated shortfall in the number of data analysts required in the US in 2018

$130,000

The median annual salary for analytics professionals in Australia

Why experts are calling data science the sexiest job in the world

Big data scientists are entering the world of healthcare, and the impact is set to be revolutionary.

It's not often that an occupation is crowned "sexiest job of the century" only a few years after it pops up. But data scientists have bucked the trend and are reigning supreme in the job market – and they're reaping some impressive benefits as a result.

Proficient at navigating vast oceans of information to fish out hidden trends and patterns, data scientists are at the forefront of computer science and artificial intelligence. They develop software and algorithms to target the information they're seeking and then, from that mind-numbingly massive coalface of big data, they extract invaluable insights for their clients.

Now, less than a decade since LinkedIn and Facebook analysts popularised the term "data scientist", it's become one of the most coveted roles for ambitious, tech-savvy individuals, with some of the world's most successful companies like Google and Walmart scrambling to snap them up.

And that's why back in 2012, the esteemed Harvard Business Review bestowed the title of "Sexiest job of the 21st century" on data scientists.

"Think of him or her as a hybrid of data hacker, analyst, communicator, and trusted adviser," write The Review's Thomas H. Davenport and D.J. Patil. "The combination is extremely powerful – and rare."

Leading a healthcare revolution

In the healthcare sector, data scientists are now coming into their own - particularly with the recent opening of UNSW's world-leading Centre for Big Data Research in Health.

Using large-scale electronic data that spans the biomedical, clinical and health services domains, the Centre brings together more than 60 research staff and students to tackle critical health issues facing Australian and global communities.

"I love it because it's so stimulating," says Professor Sallie-Anne Pearson, head of the Centre's Medicines Policy Research Unit, which uses big data to determine how medicines are being used locally and internationally.

"It's science, but there's a lot of art in this."

Data scientists in the health sector can't rely on their technical skill alone, says Peter Cronin, co-founder and managing director of Prospection, a Sydney-based health insights company. They also need people skills, communication skills, and an inquiring mind.

"Being a good data scientist in this sector means first being able to understand what is the question that someone wants to ask. Then you need to understand the data you're working with, including the limitations of that data," Cronin explains.

"Thirdly, you have to be able to develop algorithms. And the fourth component is knowing how to communicate or visualise the answer to be able to present it to the client."

"Within healthcare there are a lot of nuances to the data, and healthcare can be complex," he says. "It really helps to understand disease and that sort of thing."

Centre researcher Associate Professor Georgina Chambers of the National Perinatal Epidemiology and Statistics Unit says the exponentially growing area of big data in health is enthralling, but it's in desperate need of more data scientists to grapple with the issues that come from accessing such data.

"I'm excited by it, but what I sense is that, like a lot of medical science, the science is going to move a lot faster than individuals' and society's ability to digest it," she says.

And because data science is cross-disciplinary, Pearson adds, there are opportunities for everyone.

"What I love about this field is it's so diverse," she says. "I'm a behavioural scientist – I'm not a doctor, I'm not a pharmacist. But I've been able to establish a research career. Data science welcomes everyone."

Health Data Science Overview

Health Data Science is the science and art of generating data-driven solutions through comprehension of complex real-world health problems, employing critical thinking and analytics to derive knowledge from (big) data.

The Health Data Science programs are designed for those new to Health Data Science and those already working in the field looking to up-skill. Whether you are a statistician who wants to build on your current skills with exposure to a field where you can make an impact; a clinician or nurse who wants to expand your capabilities and improve the quality of care received by your patients; or a keen programmer looking to convert your "on-the-job" experience into a formal qualification, our programs welcome students from a wide range of backgrounds.

Students are guided through the Health Data Science pipeline from the context of health and data curation through to analytics, computation and communication. Our programs use real-world examples and innovative teaching techniques to ensure students gain the essential skills for a career in Health Data Science.

Graduates of the Master of Science program can function at any stage along the Health Data Science pipeline including designing and leading research studies or evaluations, conducting complex analyses, managing teams of data analysts or acting as health policy advisors on the outcomes of study findings. The Health Data Scientists arising from these programs will have a breadth of skills for many different roles in the arena of health big data. Employers of Health Data Scientists can include government Departments of Health, hospitals, universities and research institutes, pharmaceutical companies, health insurance companies and private data analytics consultancies.

As part of the Centre for Big Data Research in Health at UNSW, you'll belong to a vibrant community of researchers, educators, and students. Our team have world-leading expertise in managing, manipulating, analysing and visualising health big data. We welcome you to become part of it.

Andrew Blance

Program Director Health Data Science, Centre for Big Data Research in Health

Faculty

Professor Louisa Jorm (Centre for Big Data Research in Health, UNSW)

Associate Professor Georgina Chambers (Centre for Big Data Research in Health, UNSW)

Professor Sallie Pearson (Centre for Big Data Research in Health, UNSW)

Associate Professor Claire Vajdic (Centre for Big Data Research in Health, UNSW)

Andrew Blance (Centre for Big Data Research in Health, UNSW)

Sanja Lujic (Centre for Big Data Research in Health, UNSW)

Dr Timothy Churches (Ingham Institute for Applied Medical Research and South Western Sydney Clinical School, UNSW)

Dr Oscar Perez Concha (Centre for Big Data Research in Health, UNSW)

Dr James Farrow (Centre for Big Data Research in Health, UNSW)

Dr Amy Gibson (Centre for Big Data Research in Health, UNSW)

Dr Mark Hanly (Centre for Big Data Research in Health, UNSW)

Dr Maarit Laaksonen (Centre for Big Data Research in Health, UNSW)

Dr Sebastiano Barbieri (Centre for Big Data Research in Health, UNSW)

Dr Stephanie Choi (Centre for Big Data Research in Health, UNSW)

Associate Professor Chun Tung Chou (School of Computer Science and Engineering, UNSW)

Natasha Donnolley (Centre for Big Data Research in Health, UNSW)

Dr Michael Falster (Centre for Big Data Research in Health, UNSW)

Dr Katie Harris (School of Public Health and Community Medicine, UNSW)

Dr Alys Havard (Centre for Big Data Research in Health, UNSW)

Dr Ben Hsu (Centre for Big Data Research in Health, UNSW)

Dr Kylie-Ann Mallitt (Centre for Big Data Research in Health, UNSW)

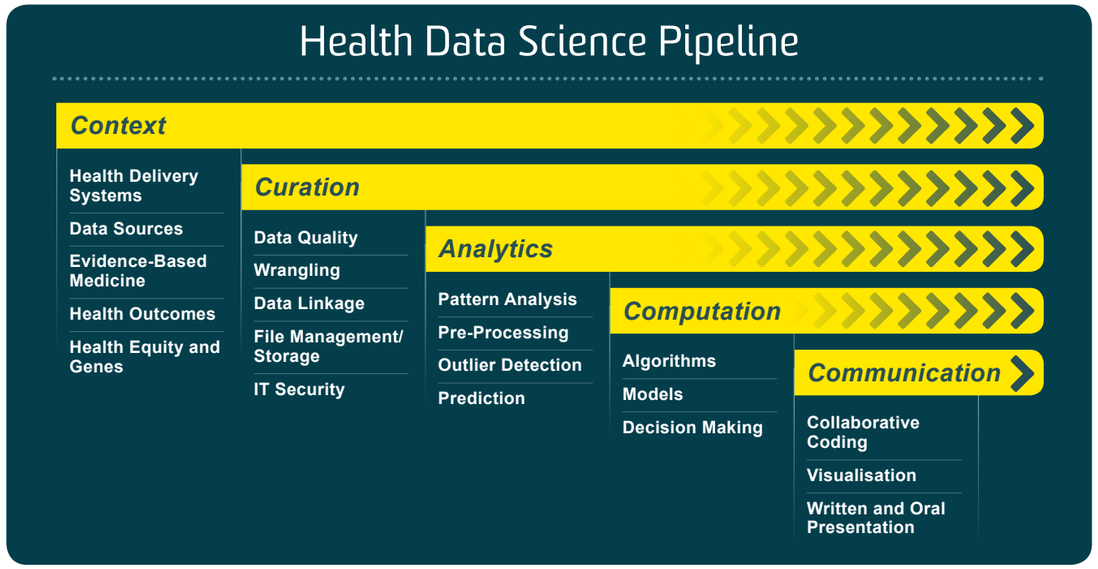
Dr Andrea Schaffer (Centre for Big Data Research in Health, UNSW)

Dr Peter Straka (School of Mathematics and Statistics, UNSW)

Dr Duong Tran (Centre for Big Data Research in Health, UNSW)

Dr Hanna Tervonen (Centre for Big Data Research in Health, UNSW)

Dr Marina van Leeuwen (Centre for Big Data Research in Health, UNSW)



Health Data Science Programs

The Master of Science in Health Data Science is fully articulated with options for a Graduate Certificate and Graduate Diploma degree. Students may exit the Master of Science with a Graduate Certificate or Graduate Diploma if they meet the requirements of these programs. The entry requirements for these programs are described on page 16.

Students progress through the Health Data Science pipeline as they work through the degree levels. In the Graduate Certificate, students acquire foundational skills in health context, programming, statistics and data management that progresses into skills in advanced statistics, machine learning and data visualisation in the Graduate Diploma. The Master of Science provides an opportunity to experience the entire Health Data Science pipeline using a real-world health data problem through a dissertation or workplace internship, or students can select a capstone project and further their technical learning with a choice of electives. High achieving graduates of the Master of Science will have potential for consideration of PhD enrollment.

The programs are available as full-time or part-time in 2019. The Master of Science can be completed part-time in 2 to 3 years.

Program	Units of Credit	Duration	Study Mode	Courses
Graduate Certificate 7372 (CRICOS 096227J)	24 (4 core courses)	0.6 year full-time	Full-time or part-time	• HDAT9100 Context of Health Data Sciences • HDAT9200 Statistical Foundations for Health Data Science • ENGG1811 Computing for Engineers • HDAT9400 Management and Curation of Health Data
Graduate Diploma 5372 (CRICOS 096226K)	48 (8 core courses)	1 year full-time	Full-time or part-time	• HDAT9500 Health Data Analytics: Machine Learning and Data Mining • HDAT9600 Health Data Analytics: Statistical Modelling I • HDAT9700 Health Data Analytics: Statistical Modelling II • HDAT9800 Health Data Analytics: Visualisation and Communication of Health Data
Master of Science 9372 (CRICOS 096225M)	72 (8 core courses + Research OR Research Capstone and Electives	1.6 years full-time	Full-time or part-time	• HDAT9900-9902 Health Data Science: Dissertation OR • HDAT9910 Health Data Science: Capstone • Choice of Electives up to 18 UOC

Health Data Science Program Courses

Teaching Approach

Our Health Data Science courses use a blended education teaching approach for a student-centric learning experience. Blended education integrates traditional face-to-face tutorials with interactive online learning activities. In some courses, a flipped classroom approach is utilised wherein students learn theory from short online videos and then use face-to-face sessions to apply knowledge, practice skills or for peer-to-peer learning. Varied assessment modalities are also used throughout the program to engage critical thinking, independent reflection or team work skills, for example reflective blogs, multiple choice question games and debates.

HDAT9100 Context of Health Data Sciences
6 UOC

The Context of Health Data Science provides an introduction to how data are generated and used in a contemporary health system. We look at how health outcomes can be measured and reported in various forms of health data, and how these health data can reveal inequalities in health. The course describes the major sources of health data, including those relating to primary care, hospital stays and prescription medicines, and how this (and other) information can be used by the health data scientist to create evidence for policy and research.

Activities are structured to foster a scientific, questioning attitude in the student. Students are encouraged to think critically about how health data are recorded, what this reveals about the underlying health delivery systems, and be creative in their use of health data sources to create or critically appraise evidence.

HDAT9200 Statistical Foundations for Health Data Science
6 UOC

Health data is often complex and noisy. Obtaining actionable insights (or revealing the hidden signals) from such data requires the utilisation of probabilistic concepts. Thus a solid understanding of the principles of statistics is intrinsic to Health Data Science. The aim of this first course in probability theory is to introduce the foundations required to understand such phenomena.

The course design is highly innovative and novel. Statistical computing is used to gain a sound understanding of statistical theories and concepts. Specifically, this course draws on the practical application of Monte Carlo algorithms, which are a very effective method of statistical computing. Once this illustrative approach has (a posteriori) demonstrated a theory, it will then be stated formally.

ENGG1811 Computing for Engineers
6 UOC

The objective of this course is for students to acquire computing skills for solving problems in engineering. The course will develop the students' proficiency in a high level programming language and in using programming for problem solving. Topics: algorithms, program structure (statements, selection, iteration, functions), data types, arrays and matrices, reading and writing files, testing, code quality, simulation, animation, visualisation. The course includes practical work in labs and programming projects.

HDAT9400 Management and Curation of Health Data
6 UOC

This course is designed to equip students with the skills required to collect or obtain data, design data management strategies aligned with best practice, and appreciate the day to day practicalities of data curation for sound data management. Students will develop data wrangling skills required to assemble data suitable for analysis and research purposes, including data from linkage projects. Data wrangling skills will focus on the key areas of data security, data exploration, documentation of data (for example data dictionaries) and data management, with the ultimate aim of creating analysis-ready datasets and ensuring reproducible results.

HDAT9500 Health Data Analytics: Machine Learning and Data Mining
6 UOC

This course will provide an introduction to data mining and machine learning techniques through a series of health applications. You will learn about the underlying supporting theory of these techniques, as well as gain the practical know-how required to effectively apply these techniques to new health data problems.

From electronical medical records, claims, registries, medical databases, and health digital data in general, healthcare organisations have a vast amount of data. Nonetheless, for this information to be useful, it needs to be enhanced by the power of data mining analytics and machine learning.

Data Mining can be defined as the discipline that merges methods coming from statistics, computer science and database analysis applied to large databases. Machine Learning—a subset of Data Mining—comprises a powerful and diverse set of techniques and algorithms used to discover patterns and relationships in (big) data with the final goal of creating knowledge from this data.

HDAT9600 Health Data Analytics: Statistical Modelling I
6 UOC

This course provides a sound grounding in the theory and practice of fitting statistical regression models, with particular focus on the flexibility of generalised linear models (GLMs). Starting with linear regression, a major theme of the course is best practice in model fitting, including thorough exploratory data analysis, model assumption checking, data preparation and transformation, including the use of imputation, and careful attention to model adequacy and diagnostics. Emphasis is given to content-aware, purposive model building and the use of Directed Acyclic Graphs (DAGs) of causal relations to inform model parameter selection. Non-linear, logistic, binomial and Poisson models for count data are also covered. Effect modifications (interactions) and their meaning in a health context are explored. The presentation and visualisation of statistical models is considered, with emphasis on the explanatory insights that can be gained from well-constructed models. The final part of the course covers basic time-series models, survival analysis and other time-to-event models.

HDAT9700 Health Data Analytics: Statistical Modelling II
6 UOC

Sophisticated modelling techniques are essential for the analysis of real-world health data. Building on Health Data Analytics: Statistical Modelling I (HDAT9600), this course expands the statistical toolkit and broadens students' understanding of relevant statistical approaches for the analysis of realistically complex data structures and research questions. The course is aimed at those currently working or planning on working in health or a health-related field, and who are interested in applying advanced statistical methods to analyse complex data.

Health Data Science Program Courses

Topics covered in this course include multilevel models for hierarchical data; analysis of time series and longitudinal data; quasi-experimental approaches for drawing causal inferences from observational data; multiple imputation for missing values; and simulation approaches for study planning and model evaluation.

Content is delivered through a combination of online readings, expert guest lectures and practical hands-on tutorials. Statistical concepts are illustrated with a variety of health examples, and students will learn how to implement methods using leading statistical software. Lectures are followed by weekly exercises, which reinforce the learning and programming skills covered in the face-to-face tutorials.

HDAT9800 Visualisation and Communication of Health Data 6 UOC

Health Data Scientists need to interface with audiences from a broad and varied array of backgrounds, and across the full technical spectrum from lay through to specialist. Thus effective communication is an essential attribute. Further, this capability is required across different media in the forms of the written word, oral presentation and Vis (data communication via a visual medium).

This course takes a toolbox approach to creating appropriate, reproducible and transparent analyses and visualisations. In the context of R, it presents useful best-practice data science analysis and visualisation techniques with a focus on different types of data visualisations. A basic understanding of how people process information can ensure communication remains effective to an audience with a disability.

HDAT9900-02 Health Data Science: Dissertation 6, 12 or 18 UOC

The dissertation consists of extensive (directed) independent research with an academic supervisor. The learning from the Graduate Diploma scaffolds to this 'realworld' project. In addition to developing sound project management skills, this course facilitates the bigger picture - the Health Data Science pipeline is experienced from start to finish.

Support is given via weekly supervisory meetings, supplemented with additional workshops dependent on specific project requirements. An additional early checkpoint involves the development and submission of study protocol and literature review. The final outputs will mirror those of a real world academic setting. Specifically the production of a manuscript to the specifications of a peer reviewed journal relevant to the project and of publishable standard. The project is also to be disseminated orally via a 15 minute presentation (including 5 minutes of questions and answers).

Students are required to complete Graduate Diploma to a satisfactory standing to be admitted onto this course. The choice of project could either be selected from an offered list of projects or developed from students proposals, dependent on the availability of a suitable supervisor and agreement on project topic.

Students are required to complete a total of 24 UOC in Dissertation courses over a number of terms. This can be completed on a full-time or part-time basis.

HDAT9910 Research Capstone 6 UOC

The learning from the Graduate Diploma (5372) scaffolds to this six unit of credit 'desk-based' research, capstone project. The overarching aim is to facilitate the bigger picture of Health Data Science (HDS); the student experiences the HDS pipeline from start-to-end. Thus, the student is presented with the opportunity to bring all the content of the Graduate Diploma together, realising the relative ordering and merits of each stage. This capstone has the advantage of allowing a further 18 units of credit of broadening electives to be undertaken.

The capstone project involves completing extensive, desk-based, independent research tasks, requiring the use of the R and/or Python programming languages. An entire HDS project has been constructed and sliced into the respective stages of the HDS pipeline. At each stage, the student has the option of completing minor or major tasks to progress to the next stage. For example, at the 'Curation' stage, a minor task might be a short-written report (circa 1,000 words) identifying the issues to be addressed. A major task would involve preparation of a data management plan (DMP; circa 3,000 words). Each task will be assigned a point score based on its complexity, proportional to the expected (notional) time required to complete the task. To complete the course, will require successful completion of three minor and two major tasks.

Students are required to complete Graduate Diploma in Health Data Science (5372) to a satisfactory standing to be admitted onto this course.

Electives Up to 18 UOC

- BINF9010 - Applied Bioinformatics (6 UOC)
- BINF9020 - Computational Bioinformatics (6 UOC)
- BIOM9450 - Clinical Information Systems (6 UOC)
- COMP9021 - Principles of Programming (6 UOC)
- COMP4121 - Advanced and Parallel Algorithms (6 UOC)
- COMP6714 - Information Retrieval and Web Search (6 UOC)
- COMP9024 - Data Structures and Algorithms (6 UOC)
- COMP9101 - Design and Analysis of Algorithms (6 UOC)
- COMP9311 - Database Systems (6 UOC)
- one of the following:
  - COMP9313 - Big Data Management (6 UOC)
  - COMP9318 - Data Warehousing and Data Mining (6 UOC)
- COMP9319 - Web Data Compression and Search (6 UOC)
- MATH5165 - Optimization (6 UOC)
- MATH5425 - Graph Theory (6 UOC)
- MATH5845 - Time Series (6 UOC)
- MATH5885 - Longitudinal Data Analysis (6 UOC)
- MATH5905 - Statistical Inference (6 UOC)
- MATH5945 - Categorical Data Analysis (6 UOC)
- MATH5960 - Bayesian Inference and Computation (6 UOC)
- one of the following:
  - PHAR9114 - Health Technology Assessment in Australia (6 UOC)
  - PHAR9115 - Advanced Health Technology Assessment (6 UOC)
- PHAR9120 - Clinical Trials (6 UOC)
- PHAR9121 - Pharmacovigilance (6 UOC)

Entry Requirements

Domestic and international students from a broad range of backgrounds including healthcare, mathematics, statistics and computer science are encouraged to apply.

Direct entry is available for the Master of Science and Graduate Certificate programs. Entry into the Graduate Diploma is through the successful completion of the Graduate Certificate program.

Master of Science in Health Data Science (Program 9372)

The entry criteria are:

- an undergraduate degree in a cognate discipline or
- an undergraduate degree in a non-cognate discipline at honours level or
- successful completion of Graduate Diploma in Health Data Science (Program 5372) or
- qualifications equivalent to or higher than Graduate Diploma in Health Data Science (Program 5372; case-by-case basis)

Graduate Certificate in Health Data Science (Program 7372)

The entry criteria are:

- an undergraduate degree in a cognate discipline or
- an undergraduate degree in a non-cognate discipline at honours level or
- an undergraduate degree in a non-cognate discipline and minimum 1-year full-time equivalent of relevant work experience or
- minimum 3-years full-time equivalent of relevant work experience and tertiary-level training, demonstrating capability in a cognate discipline

Relevant experience is defined as:

- any professional position involving data acquisition, management or handling (e.g. database manager) or
- any professional position involving analytics (e.g. data analyst)

Evidence requirements will be a CV and an employer provided statement of service in relation to relevant experience.

Cognate Discipline is defined as a degree in one of the following disciplines:

a science allied with medicine, including

- medicine
- nursing
- dentistry
- physiotherapy
- optometry
- biomedical/biological science
- pharmacy
- public health
- veterinary science
- biology
- biochemistry

- statistics
- mathematical sciences
- computer science
- psychology
- (health) economics
- data science
- other (case-by-case basis)

Admissions and Enrolment Process

Apply now for entry into Term 1, 2019

1 Check you meet the entry requirements described on page 16 and English language requirements (unsw.edu.au/english-requirements-policy)

2 Apply online at UNSW Apply Online (applyonline.unsw.edu.au)

- Register with UNSW Apply Online
- Select the Master of Science 9372 or Graduate Certificate 7372 program
- Upload necessary documents (certified or original documents, CV and employer statement if applicable)
- Pay A$125 application processing fee
- Submit application

3 Track application at UNSW Apply Online

4 Accept your offer online

- Successful applicants will be emailed a Letter of Offer
- For domestic students, the Letter of Offer will be distributed after 30 November 2018
- Follow the instructions in the Letter of Offer and accept your offer at www.gettingstarted.unsw.edu.au

5 Enrol in courses online

- Follow the prompts in the "getting started" website to enrol in courses online

Applications will close in January 2019. Domestic students wanting to be considered for a Commonwealth Supported Place need to apply by 30 November 2018.

Indicative Fees

The total cost of the Master of Science program will depend on your selection of courses in the final stage of the program. The indicative tuition fees are subject to change on an annual basis.

Domestic

School	per UOC	per 6 UOC
School of Medical Sciences (HDAT)	A$640	A$3840
School of Medical Sciences (PHAR)	A$570	A$3420
School of Computer Science and Engineering (COMP/BINF)	A$725	A$4350
Graduate School of Biomedical Engineering (BIOM)	A$725	A$4350
Faculty of Engineering (ENGG)	A$965	A$5790
School of Mathematics and Statistics (MATH)	A$650	A$3900

Program	Total Cost of Program
Graduate Certificate	A$17,310
Graduate Diploma	A$32,670
Master of Science	A$46,770-49,560

International

School	per UOC	per 6 UOC
School of Medical Sciences (HDAT)	A$790	A$4740
School of Medical Sciences (PHAR)	A$635	A$3810
School of Computer Science and Engineering (COMP/BINF)	A$955	A$5730
Graduate School of Biomedical Engineering (BIOM)	A$955	A$5730
Faculty of Engineering (ENGG)	A$965	A$5790
School of Mathematics and Statistics (MATH)	A$900	A$5400

Program	Total Cost of Program
Graduate Certificate	A$20,010
Graduate Diploma	A$38,970
Master of Science	A$54,090-59,850

For more information regarding UNSW tuition and other student fees, please visit: student.unsw.edu.au/fees

Commonwealth Supported Places

Commonwealth Supported Places are not available in 2019.

Financial assistance for Domestic students

FEE-HELP is an Australian Government loan scheme that assists eligible full fee-paying students to pay all or part of their tuition fees. For more information, please visit: student.unsw.edu.au/fee-help.

Key Dates

2018

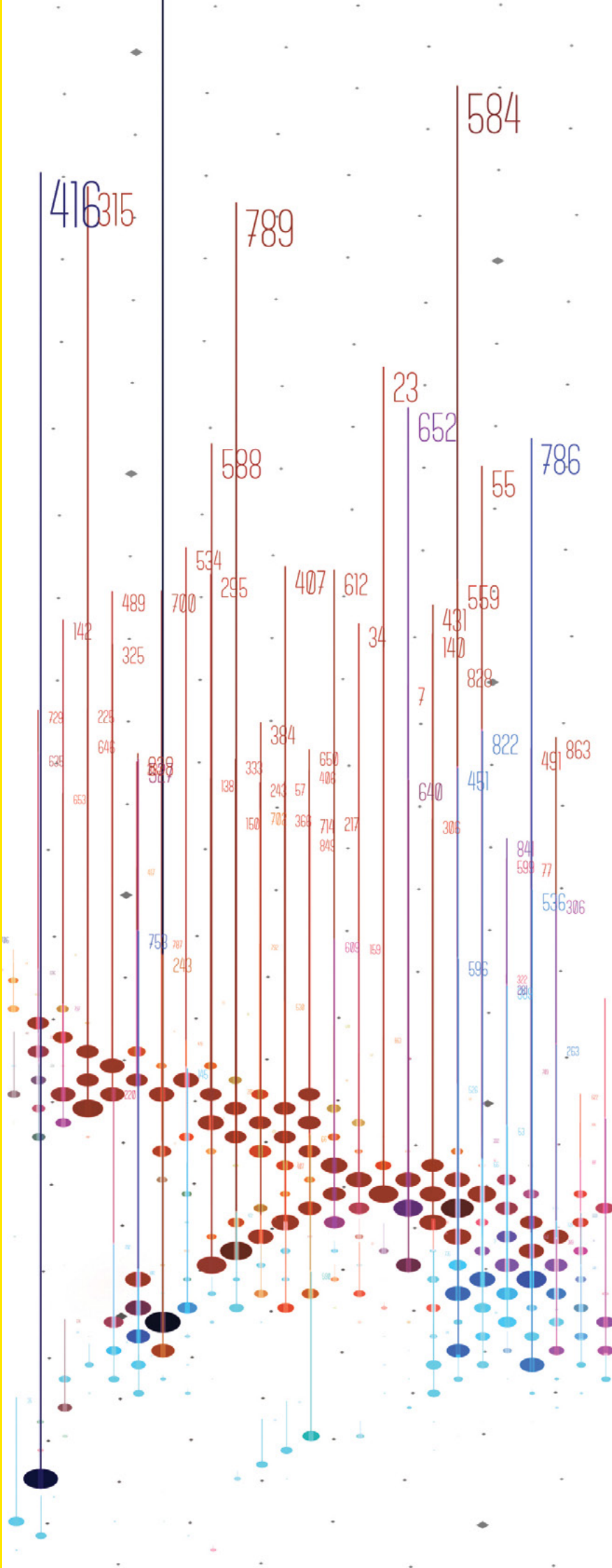
2 October	Enrolments open

2019

End of January	Admissions close
15 February	Induction and Welcome
18 February – 1 May	Term 1 Teaching Period
19 May – 2 June	Term Break
3 June – 12 August	Term 2 Teaching Period
1 September – 15 September	Term Break
16 September – 25 November	Term 3 Teaching Period

The full UNSW academic calendar is available at student.unsw.edu.au/new-calendar-dates

UNSW SYDNEY | Australia's Global University



ABOUT POSTGRADUATE PROGRAMS

Phone: +61 2 9385 9064

Email: MScHDS@unsw.edu.au

Web: cbdrh.med.unsw.edu.au/postgraduate-coursework

Visit: Level 1, Centre for Big Data Research in Health, AGSM Building, UNSW, Kensington, Sydney.

CRICOS Provider Code. 00098G