

A FUTURE IN
ANALYTICS



WHAT IS ANALYTICS?

In the age in which we live, almost all of us consume and produce digital data for business, environmental, health, sporting, community or private uses. Every day we are accessing, manipulating and storing data. In a nutshell, analytics provides the expertise and technical skills to navigate and make sense of this ever-increasing sea of information. Analytics is now at the heart of modern enterprise, helping businesses and other organisations to identify areas for improvement, involving the fundamentals of mathematics, statistics and computing.

However, analytics goes beyond simple analysis and computation. Its primary goal is to enable business and other decisions based on appropriate data, resulting in the rapid rise of organisational

structures and career fields such as business intelligence and business analytics.

Analysts work on projects as diverse as building a mortality risk prediction model for an intensive care unit, investigating use of social media data as an indicator of drugs in the community or forecasting to determine usefulness of battery storage systems for solar power generation.

Are you a problem solver? Do you like puzzles and games involving logical thinking and working with people to help solve their problems? Are you generally curious and driven toward making an impact through your work? If so, then analytics could be a great career choice for you.



OUTLOOK AND TRENDS

GROWTH AREAS

Data visualisation

Allows businesses to ask interactive questions of their prepared data sets and get immediate, engaging visual responses.

Artificial Intelligence (AI) and big data analytics

These allow organisations to effectively process and analyse massive datasets, as well as to identify patterns, and eventually make predictions. These AI-powered algorithms automate decision-making processes, enabling businesses to uncover valuable insights that drive growth and improve operational efficiency.

Cloud-based analytics

Platforms such as Amazon Web Services and Microsoft Azure allow businesses to gain business insights and focus on key issues, while also saving on infrastructure design, setup and management costs.

Predictive analytics

It has become essential for businesses to predict and anticipate trends, in order to make proactive decisions and better shape their outcomes.

Natural language processing

Also known as natural language data sets, natural language processing is utilised in organisations to analyse unstructured text data, such as customer reviews, social media comments and emails, using either rule-based or probabilistic machine learning approaches.

Data scientist specialisations in demand

The number of data scientist roles is projected to grow 36% between 2021 and 2031, according to fortune.com. Strongest growth is expected in three specialist categories. Chat GPT is creating demand for people with AI and machine learning knowledge, user privacy has become a big issue and data infrastructure continues to expand.



WORK SETTINGS

Work opportunities can be found in a wide array of sectors and industries in New Zealand, including financial and business management, engineering and industrial, building and construction, health, sport and community, government departments and agencies, and research and education.

Big financial firms, in particular, offer many career opportunities. Data analytic teams work in areas such as identification of fraud, waste or abuse, assessment and enhancement of financial and data models, spend analysis, data migration planning and revenue leakage analysis.

Analytics qualifications tend to be gained through mathematical sciences or computer information sciences pathways. While there are crossovers, career options can vary.

- A **science** pathway is more likely to lead to roles that are focused on analysing data, drawing conclusions, providing feedback to clients and stakeholders, and proposing solutions and recommendations.
- A **computer information science** qualification will more likely result in roles centred on gathering, manipulating, processing and storing data, as well as managing IT strategy, security, system management and database design.

CAREER ROLE EXAMPLES

Data scientist – Interprets patterns in data, communicating results to end users in a clear and logical format. Involves familiarity with big data platforms for data management, data visualisation and data mining using methods from machine learning. A multi-faceted role requiring many skill sets.

Business/performance analyst – Works interactively with others in organisations to focus on the business requirements. Uses data, including market analysis, to improve the business performance of an organisation. Communicates with teams across the organisation providing data insights to improve strategies, streamline processes, increase efficiency etc.

Data analyst/data insights analyst – Uses SQL, Excel, Python to assess quality and meaning of data. May also work with other tools, including R and SPSS, to identify, analyse and interpret patterns and trends in complex data sets. Works directly with marketing, IT and business intelligence teams. Has a core statistical and analytic focus.

Data engineer – To advise organisations and assist them in making better decisions based on the trends found in their findings. Typical tasks involve creating analytics software, constructing databases and data warehouses to provide information solutions to large-scale companies in their endeavours to understand the associations in the data.

Statistician (Research or Applied) – Applies statistical techniques and models to forecast results, trends and needs, designing data collection methods such as surveys, experiments and questionnaires. Identifies data trends, and the differences and relationships between different sets of data and uses computers to produce graphs, tables and charts of data and writes reports and presents findings to clients. Provides data to inform policy and business decisions.

Implementation analyst – Supports data synchronisation service line for existing users and implementing the system with future clients. Involves the support and roll out of additional service lines. Performs data analysis, prepares reports and carries out training and general co-ordination activities as required.

Financial analyst – Uses financial data to spot trends and extrapolate into the future to help their employers and clients make the best investment decisions.

SKILLS AND KNOWLEDGE

- Ability to apply advanced predictive modelling, as well as quantitative/qualitative statistical analyses.
- Proficiency in drawing on logical thinking, predictive analytics and statistics to make recommendations that will solve problems and propel a business forward.
- Ability to rapidly adopt and adapt to working with new technology/platforms.
- Recognises gaps in a business structure and is able to use this knowledge as a guide to manipulate data, derive useful insights, and make recommendations.
- Good communicator with strong presentation skills and comfortable in a client facing role and talking 'business' from technical reports.

Technical and software knowledge

- Statistics, algorithms, quantitative methods, data mining, predictive analytics, data reporting, logistic regression and decision trees.
- Database applications including mining, data import, table creation, query creation and macros
- SAS (Statistical Analysis System), SAP, SQL, SPSS, Angoss, R and Excel.

PERSONAL QUALITIES

- Exceptional interpersonal skills
- Logical, analytical and methodical
- Quick to learn new tasks
- Highly accurate with an intuition for drilling down to detail
- Motivated, proactive, able to meet deadlines

SALARY GUIDE

Salaries vary depending on experience and industry.

	Salary (per year)
Graduate starting salary range	\$55,000 - \$75,000
Intermediate to senior roles with 3-5 years' experience	\$75,000 - \$120,000

Salary range is indicative of the New Zealand job market at the time of publication mid 2024 and should only be used as a guideline.

Keep up to date with salary data by accessing salary guides from websites, including:

Prosple Graduate Salary Guide

nz.prosple.com/on-the-job/whats-the-average-graduate-salary-in-new-zealand

Hays NZ

hays.net.nz/it/data-analyst-jobs/salary

Industry Connect

industryconnect.org

Careers NZ

careers.govt.nz/jobs-database/it-and-telecommunications

PROFESSIONAL REGISTRATION

While membership of professional bodies and associations are not mandatory, they can be hugely beneficial for professional and career development. Relevant local organisations include the Institute of IT Professionals (IITP) NZ, the New Zealand Analytics Forum and the New Zealand Statistical Association.

THE AUT APPROACH

The Analytics major in the Bachelor of Science includes a third year 30-point project across two courses that links theory to practical application. Students carry out an independent research-based project in the context of Aotearoa NZ conducted in partnership with industry.

Double major helps career options

A double major in Analytics and Mathematical Modelling & Computation can widen your career options. Statistician, data analyst, data scientist, and performance analyst are just some of the roles you can enter with either or both qualifications.

FURTHER STUDY OPTIONS

Further study in analytics is available at postgraduate level, including a Master of Analytics and PhD options.



BRIANNE LEEF

Associate Analyst, Financial Markets Authority (FMA)

Bachelor of Science in Analytics and Applied Mathematics*

"I work for the Financial Markets Authority (FMA) as an associate analyst in the Research and Insights team. I got the role after doing an internship through Tupu Toa with the FMA over summer after finishing my degree. FMA interested me because money is something that affects every single person, so working at FMA gives me a unique opportunity to help everyday people in a significant way.

As an analyst my job is essentially to identify and understand problems. I really enjoy the broad spectrum of tasks and challenges the job brings. Dull days are few and far between.

Basically, we analyse data from various sources to understand consumer behaviour and to identify the issues affecting New Zealanders from the financial markets. The issues we discover help us to better inform the organisation's direction.

My team meets in the morning to check in and see who needs help and after that I organise my day. I usually have two to four projects going so my routine will differ depending on those projects.

For the most part I am scoping out what I'm trying to achieve, making meetings to get the information I need, doing statistical analysis, and producing some sort of product for the company to use. Since I am still new, my projects are quite low-key and give me the best opportunity to learn more about FMA's systems and processes.

There is quite a bit of writing involved, either for project proposals or analytics reports. I've had to do a few presentations here and there. I mainly use Power BI, SQL (Server) and Python in terms of software and languages. To new graduates I say don't underestimate how important SQL is.

My long-standing nemeses are writing and presentations since they are not my strongest skills. However, I'm getting plenty of opportunities to learn and improve. Being able to write concise and informative reports is incredibly valued."

* The Applied Mathematics major has been renamed Mathematical Modelling & Computation.

USEFUL WEBSITES

NZ Mathematical Society
nzmathsoc.org.nz

Statistics New Zealand – Tatauranga Aotearoa
stats.govt.nz

Analytics Society of INFORMS
informs.org/Community/Analytics

American Society of Quality – Statistics Division
asq.org

IT Professionals NZ
itp.nz

SAS Analytics Software and Solutions
sas.com/en_nz/home.html

Siam – Society for Industrial and Applied Mathematics
siam.org

FURTHER INFORMATION

For more information on studying analytics, visit aut.ac.nz/analytics

For other Future Career Sheets visit aut.ac.nz/careersheets

EMPLOYABILITY & CAREERS

For employability and career support, AUT students can book an appointment through elab.aut.ac.nz

 @AUTEmployabilityandCareers

FUTURE STUDENTS

Contact the Future Student Advisory team for more information: aut.ac.nz/enquire

futurestudents@aut.ac.nz

 @FutureStudentsofAUT

CURRENT AUT STUDENTS

Contact the Student Hub Advisors team for more information: 0800 AUT UNI (0800 288 864)

aut.ac.nz/enquire | studenthub@aut.ac.nz

STUDY LOCATION – CITY CAMPUS

55 Wellesley Street East, Auckland Central

The information contained in this career sheet is correct at time of printing, May 2024.

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