

Mātai Pūtaiao Kōrero Matawhenua Undergraduate Geographic Information Science



If you've ever dropped a pin into Google Maps, or found the shortest route using the public transport network, then you've engaged with Geographic Information Science (GIScience). GIScience is the study of the data structures and techniques used to capture, process and visualise geographic information.

What you will learn

As a GIScience student you'll learn how to use data collected by satellites and drones, government-sourced data, and social media platforms to examine a wide range of social and natural processes. You'll use modelling techniques to analyse data-intensive contexts, and you'll try to answer questions like:

- › What is the relationship between urban inequality and disease?
- › What are the effects of sea level rise on coastal areas? How do resources flow across a busy transportation system?
- › What are the risks of exposure to air pollution?
- › How to map crime hotspots?
- › What are the flood and landslide risks in different areas of New Zealand?
- › What would be the best location to build a new wind farm or a hospital in the country?

- › What does human movement tell us about disease transmission?
- › What can we do to understand social dynamics and can we predict and map the effects of climate change?

The major will give you the knowledge and skills to design and conduct appropriate analyses, and experience of working with cutting-edge tools and datasets. GIScience will also help you tackle the hardest challenges facing society.

You don't need a background in geography or computing at high school to study Geographic Information Science with us. The major embraces the latest GIS technologies and ways of thinking to enable you to apply your knowledge from a range of subjects.

First and second year courses do not have prerequisites but the third year courses build upon the knowledge gained in year one and two. The programme can be entered at the second year level without prerequisite knowledge.

Choosing a subject

With so many options it's sometimes hard to choose what you want to study, but we've got you covered. You can study a double major with our Bachelor of Science to gain a broader base of skills and knowledge.

Complementary majors include:

- › Computer Science
- › Earth Science
- › Environment Science
- › Geography
- › Marine Science
- › Statistics



Career opportunities

A career for a rapidly changing world

It is estimated that 80% of data collected has some spatial component, whether it's a city name, a street address or even a precise set of coordinates.

Professionals in a wide range of fields use GIS tools to turn geographic data into maps, tables and other kinds of information needed to make informed decisions.

In a rapidly changing world, detailed, up-to-date geographic data are indispensable for governance, for commerce, and for research intended to improve our understanding of social and environmental systems.

As a GIScience graduate you'll possess sound theoretical knowledge and be able to demonstrate independent technical proficiency across the social, ecological and physical domains of GIScience application.

You could be employed by a large corporation or a local, regional or the national government. You could also work as a consultant with plenty of opportunities for travel.

Jobs related to Geographic Information Science include:

- › Cartographer
- › Climate scientist
- › Conservationist
- › Data scientist
- › Geographer
- › Geospatial database developer
- › GIS Analyst
- › GIS technician

- › GIS software developer
- › Mapping and surveying technician
- › Spatial data scientist

What you can study

- › Spatial thinking
- › Geography of the human environment
- › Earth surface processes and landforms
- › Programming techniques
- › Remote sensing

An example of Stage I courses:

- › > ENV 100 Shaping Planet Earth
- › > ENV 101 Environmental Challenges
- › > ENV 102 Social and Environmental Change
- › > ENV 103 Digital Earth



Find out more about how your degree will be structured and what courses you need to take at

auckland.ac.nz/geographic-information-science

Applications close on 8 December.



"I've been able to understand and investigate the world's complex natural and social processes, the problems we face into the future, and most importantly, how we can be the solution. Even if you have many passions, you'll be able to gain new insights and ways of showcasing them through learning and understanding GIS, as there are so many opportunities to use creativity and merge your own ideas and interests into practical assignments."

Taryn Smith
BSc in Geographic Information Science
and Environmental Science.

Kuhua ki tō mātou hāpori, ā, Kimihia tōu Pūtaiao.
Join our community and find your Science.



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Have any questions?
Contact the Student Hub

auckland.ac.nz/student-hubs