

Operations Research

Operations Research seeks to improve a problem situation by supplying decision makers with information and insights gained through problem analysis, often involving mathematical models and computers.

To find out more
minandmax.org.nz

A future in Operations Research



Working in O.R.

"I work for a small consulting company based in a main centre. I have worked on several different projects, using the skills I learned studying Operations Research."

"A recent project involved water supply, helping to reduce the cost of providing clean water to the city. We also advised on the location of a new refuse transfer station."

"A branch of our firm specializes in scheduling. Recently they scheduled all the national matches for a popular sport, aiming to make the draw as fair as possible for all teams, and reducing the cost of travel."

"I really enjoy working in a variety of areas where I can make a difference. There are opportunities for promotion where I am now, or I could get a job with an international consulting firm or even break out on my own."

**You can find out more about
Operations Research at the following:**

University of Canterbury

Department of Management,
College of Business and Economics
Private Bag 4800, Christchurch

University of Auckland

Department of Engineering Science
Private Bag 92 019, Auckland
Department of Information Systems
and Operations Management.
Private Bag 92 019, Auckland

Victoria University of Wellington

School of Mathematical and Computing Sciences
P O Box 600, Wellington
Victoria Management School
P O Box 600, Wellington

University of Waikato

Waikato Management School,
Department of Management Systems
Private Bag 3105, Hamilton

Funding was provided by the
Operational Research Society of NZ.
www.orsnz.org.nz.

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This handy pamphlet will
help you learn about O.R.

Start with an interest

Operations Research is an exciting discipline for people who enjoy solving problems. If you enjoy mathematics or statistics, particularly the practical aspects, and like the challenge of trying to improve things, then O.R. could lead to a worthwhile career for you.

Develop skills and knowledge

You can develop your skills through training at university.

You learn how to analyse and structure problems, critical thinking, modelling and computing skills, and how to deal with uncertainty and conflicts when making decisions.

For a wide range of careers

A qualification in Operations Research can lead to a wide choice of careers. Some people work for consulting firms, where they tackle a variety of projects in different areas. Other graduates use the skills and philosophies of O.R to make themselves more effective in management and other roles.

Interesting applications

O.R. graduates can work in the airline industry, where they manage ticket prices on flights to maximise profit, and allocate cabin and flight crew to flights effectively, ensuring staff satisfaction.

O.R. is used to lay out theme parks, making sure that enjoyment and profit are maximised, and waiting times are kept to a minimum.

The Duckworth/Lewis rules for scoring rained out one-day cricket matches were developed using O.R.

Queueing theory, an area of O.R., showed that having express lanes at a supermarket can make waiting times shorter for everyone.

An O.R. model is used to determine the electricity prices over New Zealand every half hour. The model matches supply and demand at the prices offered and ensures security of the national grid.

O.R. is used by investment bankers to decide how best to spread their portfolio of shares and other investments to balance profit and risk.

Where to study

At some Universities in New Zealand, Operations Research is called by other names: Management Science and Operations Management.

At the University of Canterbury, Department of Management, the focus is on the application of O.R. techniques and practices in business, industry and public services.

At the University of Auckland, Department of Engineering Science, the focus is on developing O.R. computer models using advanced optimization techniques, and applying these in industrial settings. In the Department of Information Systems and Operations Management the focus is on the management of business processes and systems.

At the Victoria University of Wellington, Management School, the focus is on decision making using systems models, intuition and mathematics, in business and manufacturing. In the School of Mathematical and Computing Sciences the focus is on the mathematics underlying O.R. and its application.

At the University of Waikato, Department of Management Systems, the focus is on modelling and support for supply chain and information systems decisions.

Working with O.R.

"I work for a large company as a trainee manager. I specialised in Operations Research at University and find that many of the skills I developed have been very helpful.



"Recently I was asked to organise a national two-day conference for all the management trainees. I used my O.R training to make sure that the event ran smoothly and accomplished the purpose of the gathering. My boss was particularly impressed that the event ran under budget.

"In the office where I work there was a problem with rostering the call centre. As they knew I had a background in Operations Research, I was asked for my opinion. I'm writing a proposal for a project to improve call centre operation. I'm hoping it will lead to more responsibility within the company.

"I'm not really employed as an Operations Researcher, but I find I use O.R. all the time."