A FUTURE IN
FOOD SCIENCE
WHAT IS FOOD SCIENCE?

Few things are more fundamental to human existence than food. It is a vital common denominator that sustains us physically and unites us socially. Across the globe, food is a key determinant of quality of life and a major contributor to economic success and social wellbeing.

**Food science** is the study of the physical, biological and chemical makeup of food and the concepts underlying food processing methods. **Food technology** is the application of food science to the preservation, processing and packaging of food and the development of new food products.

Food science plays a critical role in providing a nutritious, safe and abundant food supply for individuals, communities and nations. In a country like New Zealand, food production forms a very substantial part of our economy. Food science increases our ability to add value to our agricultural and horticultural industries and helps us understand the impact of food production on our economy.

If you love food, are a hands-on person, and want to use your scientific mind to create new food products or ensure the safety of the food we all consume, a career in food science should be on your menu.
OUTLOOK AND TRENDS

Essential industry – The food and beverage industry in New Zealand generates around $15 billion a year – over half our export earnings – and involves over 20% of our workforce. Career opportunities are enormous, particularly for food science, technology and engineering graduates, of which there is a world-wide shortage.

Ongoing need – A global emphasis on niche markets and adding value to food products ensures an ongoing need for food technologists in New Zealand. So much so, the government is actively trying to recruit food technologists from overseas, according to the Occupational Outlook 2016. Opportunities also exist for food scientists in development of new food products and technologies.

Growth in healthier food production – The food industry is increasingly interested in the production of healthier foods to increase the nutritional value of foods, support healthy lifestyle initiatives and ensure safety of foods. Food scientists are needed in the food export industry to resolve challenges around food safety, the scaling up of food production and improving shelf life of foods.

WORK SETTINGS

Food scientists are employed in both public and private sector organisations. Some work in large food production companies (e.g. Fonterra, Heinz Watties and Nestle), or smaller companies. Others can work in service organisations that support the food industry.

Production industries:
• Dairy, meat, seafood and horticultural processors
• Brewers, winemakers and beverage manufacturers
• Bakeries, confectioners and other food manufacturers

Service industries:
• Packaging, ingredient and equipment suppliers
• Advertising agencies and market research companies
• Research establishments and universities
• Government departments

Depending on the nature of the work, a food scientist or technologist may be fully or partly based in a laboratory. Alternatively, they could work in factories, offices or on the road. It may be necessary to travel to companies, factories, conferences and trade shows, both locally and overseas.

Major pathways for food science careers:
• Quality control, assurance, food safety, regulatory
• Research and development (R&D), food technologist, product development
• Flavourists, flavour chemists, food sensory scientists
• Technical sales and marketing
• Logistics and production planning
• Secondary or tertiary teaching

For more on the above, read: ‘Careers in Food Science, Technology and Engineering in New Zealand and beyond’ www.nzifst.org.nz/careers/advisers.asp

CAREER ROLE EXAMPLES

Food scientist
Investigates and analyses food, from harvest to processing, cooking, and consumption. Provides accurate nutritional information for food labels. Manages sensory research that finds out whether people like the taste, look and feel of new products. Checks the safety and quality of food. Researches consumers’ perceptions of food.

Quality assurance technologist
Conducts routine tests of raw materials and finished products. Assists with the collection and analysis of laboratory data. Plans and evaluates alternate methods and new testing procedures. Designs, operates and maintains quality systems. Ensures raw materials and manufactured products conform to quality specifications.
Salaries for roles such as food scientist, food technologist and microbiologist:

- **Graduate salary**: $45,000 - $50,000
- **Mid-career (with 2 – 3 years’ experience)**: $50,000 - $70,000
- **Senior roles (with 5 or more years’ experience)**: $65,000 - $95,000
- **Senior microbiologist (5 years plus)**: $76,000 - $130,000

Sources: www.futureintech.org.nz and Careers New Zealand.

Salary range is indicative (mid 2017) of the New Zealand job market at the time of publication and should only be used as a guideline.

**The AUT Advantage**

Bachelor of Science students majoring in Food Science gain significant practical laboratory experiences in microbiological, chemical and sensory analysis of foods, as well as development of an assurance programme in food preparation and manufacture. They also get many opportunities to develop food products while working alongside food industries and research institutes.

Food science is taught at AUT’s city campus.

**Further Study Options**

Further study in food science is available at postgraduate level, including the Bachelor of Science (Honours), Postgraduate Certificate in Science, Postgraduate Diploma in Science, Master of Science, Master of Philosophy and Doctor of Philosophy.

Research areas include food microbiology, food product development and characterisation, food safety, industrial problem solving, unique products, and sensory evaluation.
“Invita NZ imports, markets and distributes food and life science ingredients for the food, beverage, pharmaceutical and nutraceutical industries.

As Product Innovation Manager, my day-to-day responsibilities include allocating tasks to the applications team in the lab, organising tasting sessions with our sales team and producing food and beverage concepts to showcase our ingredients to customers.

One day might start with making up a low-fat yoghurt in the morning followed by formulating a sugar-free sports drink in the afternoon before finishing with a new flavour project for confectionery.

I am also responsible for managing the Invita NZ brewing ingredient portfolio. This involves looking after our range of brewing products and providing technical support to Invita’s brewing customers.

I was joined Invita NZ shortly after graduating from AUT. I started as applications technologist and three months ago moved into product innovation management. There is always a lot to learn which is why more than 5 years later I still love the challenges and opportunities my career is offering me.”

Dudley Haines
Product Innovation Manager, Invita NZ Ltd.
Bachelor of Applied Science (Food Science)

“The Bachelor of Applied Science has been renamed Bachelor of Science.

EMPLOYER COMMENT

“When recruiting, we consider cultural fit, as well as the skills and attributes that a prospective candidate brings to the role. The Product Innovation Manager has to deal with a myriad of internal and external stakeholders. Thus, the ability to liaise and communicate effectively and appropriately is most important.

As well as his experience and technical knowledge, Dudley is also flexible and communicates extremely well with internal staff and external stakeholders. Additionally, Dudley has a real sense of passion for the business, customers, product and suppliers.

He manages an ever changing work flow and is methodical in his approach. Dudley’s bubbly personality also adds to the team culture and spirit of Invita.

It's important graduates stay informed of how the food industry is changing, particularly with the speed of technology. Because the New Zealand market is relatively small, it is critical to gain work experience and develop an understanding of how some of the key leaders operate.

It is also important new graduates are realistic about their first role and appreciate that learning is never ending!”

Virginia Scott
Sales & Business Development Director for Invita NZ Ltd
USEFUL WEBSITES

New Zealand Institute of Food Science and Technology (NZIFST)
www.nzifst.org.nz

Fonterra Careers: Graduate careers at Fonterra
www.fonterra.com/careers

Plant & Food Research
www.plantandfood.co.nz/careers

FURTHER INFORMATION

For the most up-to-date information on food science study, visit our website:
www.aut.ac.nz/food-science

FUTURE STUDENTS
Contact the Future Student Advisory team for more information: www.aut.ac.nz/enquire
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CURRENT AUT STUDENTS
Contact the Student Hub Advisors team for more information: 0800 AUT UNI (0800 288 864)
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EMPLOYABILITY & CAREERS
For other Future Career Sheets visit:
www.aut.ac.nz/careersheets
For employability and career support, AUT students can book an appointment through
https://elab.aut.ac.nz/

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The information contained in this career sheet is correct at time of printing, August 2019.