Applied Science

Applied Science?
The BAppSc is a three-year degree that captures the excitement and fascination of science, heavily geared for real-world application and employment.

A critical link to ensure relevance of the BAppSc is through the Applied Science Advisory Board, comprised of business leaders from Applied Science partner industries. The Advisory Board provides strategic guidance to the programme and promotes relationships and networks between Applied Science and business across New Zealand.

The BAppSc will provide you with the key skills desired by employers. These “graduate attributes”, developed in conjunction with the Applied Science Advisory Board, comprise:

- **METHODOLOGICAL PROBLEM SOLVING**: applying logic, acquiring, organising, retrieving, evaluating and presenting information, to work independently and adapt by acquiring new skills for seeking solutions to unmet needs.
- **INTERDISCIPLINARY CAPABILITY**: understand at least two disciplines with the practical capacity to link between disciplines.
- **END-USER FOCUS**: understanding cultural diversity, ethical standards and social and personal responsibility and that the beneficiaries of applied science include: the graduate; consumers; employers; the people of New Zealand and the world.
- **NETWORKING**: the ability to communicate and maintain diverse linkages and to lead and effectively operate within a team, to appreciate New Zealand’s contribution to the international environment.
- **EMPLOYABILITY**: the attributes of interdisciplinary capability, methodological problem solving, end-user focus and networking, combined with self-confidence, personal responsibility and enterprise with a commitment to adapt in a changing environment.

The graduate attributes highlight the BAppSc graduate’s skill-base and shows potential employers diverse capability and adaptability.

The Applied Science major subjects focus on career sectors experiencing growth in New Zealand and around the world and the degree allows entry into these rapidly advancing sectors. It is designed to give students and potential employers the skills and flexibility required for today’s business environment – and tomorrow’s graduates who are analytical, adaptable, and passionate about cutting edge science.

- cutting edge science taught by research active scientists
- meaningful conversation between the University and potential employers
- developing interactions between students and potential employers

**Industry Partners**
The Applied Science Advisory Board involves industry partners from a wide range of areas. As well as providing input on the commercial relevance of the Applied Science disciplines most useful in today’s world of work, these partners are able to provide linkages into a vast network of potential graduate employers. Current partners include AbacusBio, ADInstruments, Fronde, Ecsca and Silkbody. Previous partners include: Frucor, Natural History New Zealand, Pacific Aerospace and Transpower.

A critical component in helping lift New Zealand’s economic performance is through increasing skills in the workforce. The Universities have a critical part to play in training people in science and technology – especially people with a real interest in the applications of science. Therefore the University of Otago has invested in the development of courses in Applied Science, and has appointed an Advisory Board with people from a range of industries to help focus the programme. The Board’s role is to help the University to realise the potential of the courses by assisting them to develop and foster a culture around the value of the applications of science and technology. The aim is to ensure market-ready graduates that can contribute in meaningful ways when they join the work force.

The Industry Advisory Board provides a highly-valued external perspective to Applied Science at Otago. The result is an industry-informed suite of major subjects that take the very best of academic scholarship and frame it within an applied science degree structure that emphasises interdisciplinarity. This combination develops complex real world problem-solving skills that are highly desired by today’s employers.

DR PETER FENNESSY | Chairman of the Applied Science Industry Advisory Board

“The science that has dramatically changed and improved the lives of people in the last century is applied science”

SIR JOHN MADDOX
Profiles

Molecular Biotechnology

Su Yong Hu, Molecular Biotechnology

“It is important for me in my position to have the science background when educating people on the benefits of stem cells (especially when conversing with doctors and other medical professionals) and to have the science background when making progress and initiating change.”

Duncan Meyer, Software Engineering

“I currently manage a team of software developers creating a large application for the New Zealand government. The fundamental principles of software engineering combined with the commercial knowledge that project management requires means my time at Otago was well spent.”

Fiona Simpson, Sport and Exercise Nutrition

“I focused on the thing I loved best which was sports nutrition. There’s more and more work available in sports nutrition, as people’s awareness of the importance of it increases. Fiona does a lot of work with rugby in Dunedin and in Invercargill. Her Invercargill work also includes netball and cycling athletes, from professionals down to novice and even youth players.”

Software Engineering

Modern software challenges involve complex systems and require more than standard computer programming. Computer information and algorithms control the essential processes of our production economy as well as clocks, washing machines, motor vehicles, traffic lights, the electric power to our homes. These computer systems are components of much larger systems involving hardware and people and require skilled software engineers to construct and maintain them.

Sports Technology

How does technology enhance sporting performance? With advanced analysis tools, with high-tech sportswear, with innovative design in training equipment and programmes, in leading research into human physiology. How does sports technology enhance New Zealand’s economy? By developing new technologies and products to export; engaging with local and international business. How does sports technology extend knowledge? Innovative technologies enhance research, allowing us to better understand the capabilities of the human body. How can you be a part of all this? By studying Sports Technology.

Sport and Exercise Nutrition

Sport and Exercise Nutrition looks at how sport, exercise and food influence health and human performance, and how nutrition affects sports health and performance – understanding these factors can boost athletic performance but also help with understanding diseases such as obesity, diabetes, heart disease and cancer. How does the body burn fuel? What kind of food provides the best fuel? How do different kinds of fuel affect sports performance? Sport and Exercise Nutrition includes human nutrition, exercise science and innovative management.

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Aquaculture and Fisheries

Sustainable fishing and fish farming are areas of huge significance for the New Zealand economy. Our oceans are a vital resource, the fish in them need to be harvested and managed with care. Rapidly increasing demand for seafood means we need scientists trained in the management of wild fisheries, as well as scientists trained in maximising the productivity of aquatic species in land or sea based “farms”.

Amanda Black, Applied Geology

“The work is exciting and no two problems are ever the same, we’ve come to a head in a society, where we need to constantly consider our impacts on the environment as it has the power to severely affect our quality of life as well as our livelihoods. Having had a degree in geology has helped put things into a planetary perspective. It’s challenging work but extremely rewarding, knowing that you are making progress and initiating change.”

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Mark Preece, Aquaculture and Fisheries

“The principles of aquaculture are the same, so it really doesn’t matter what the species is… What I like about Aquaculture is that it’s a more environmentally efficient and sustainable method of meeting consumer demand compared with harvesting from a wild fishery.”

Braid MacRae, Clothing and Textile Sciences

“Clothing and textiles are used to express who we are, to enhance performance and comfort, and as a functional part of many products and activities we take for granted. Clothing and Textile Sciences encompasses all possible uses of different fibres, fabrics, films and composites are diverse, for example, wool protein for use in dental work, textiles for drug delivery and health, and protective clothing for use in sport and the workplace. The identification of materials and their presentation as well as development of cutting-edge new technologies are all part of a career applying Clothing and Textile Science.”

Braid MacRae, Clothing and Textile Sciences

“It stumped me to consider the possibilities of the life and death of products. I tried to look at the life and death of products to develop a better understanding of the materials and their presentation as well as development of cutting-edge new technologies are all part of a career applying Clothing and Textile Science.”

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Elke Braun
Computational Modelling
"Having been strong in Maths and Science subjects at school, and always keen for a new challenge, Computational Modelling seemed a natural choice. I felt that a BAppSc in Computational Modelling offered a greater combination of fields than what was offered in the Science subjects at school, and always keen for a new challenge, Computational Modelling seemed a natural choice. I felt that a BAppSc in Computational Modelling offered a greater combination of fields than what was offered in the Science subjects at school, and always keen for a new challenge, Computational Modelling seemed a natural choice. I felt that a BAppSc in Computational Modelling offered a greater combination of fields than what was offered in the Science subjects at school, and always keen for a new challenge, Computational Modelling seemed a natural choice. 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