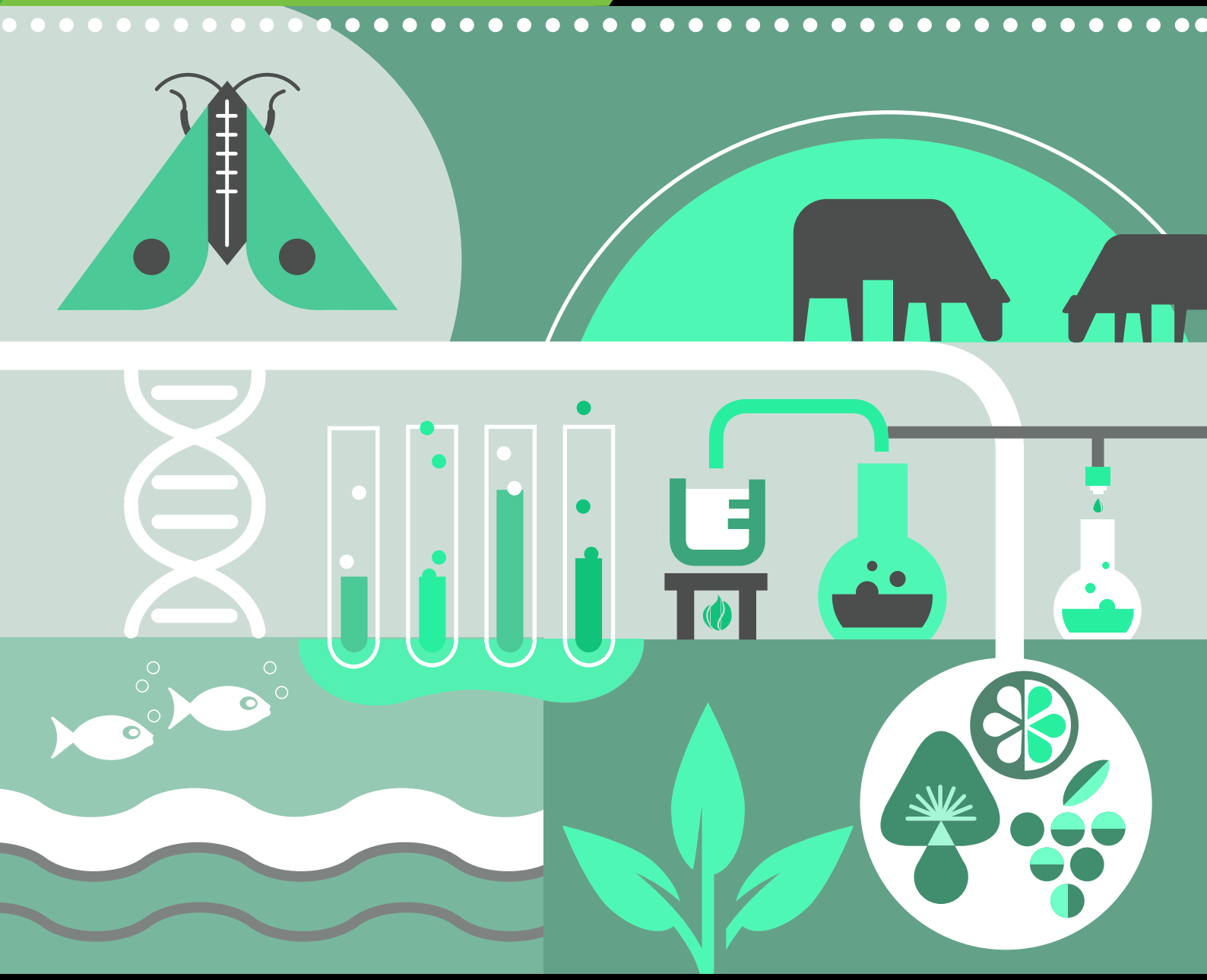
CAREERS FOR CHANGE

Science

Lincoln University
Te Whare Wānaka o Aoraki
AOTEAROA • NEW ZEALAND

New Zealand's specialist land-based university



FEED THE WORLD

PROTECT THE FUTURE

LIVE WELL

• BE PART OF THE GENERATION THAT WILL MAKE A CHANGE

• WWW.LUGENERATION.CO.NZ

OUR MISSION

The University has a mission to help: feed the world, protect the future, and live well..

It is predicted that by 2050 the world's population will reach 9.2 billion people: this will create challenges that need solutions.

As the population grows, food supply and production will become key. So will sustaining the environment for future generations. As these two, potentially conflicting, concepts become increasingly pressing we will also want to be living well on our planet.

Lincoln University is a uniquely and deliberately specialised university finding solutions for these challenges.

To achieve our mission, Lincoln is positioned to work alongside industry, the community, and people from around the globe. The University's qualifications range from certificate level through to PhD - and our teaching and research covers all activity associated with the land-based sectors to meet the needs of not only New Zealand but also the world.

Lincoln students come from all over New Zealand and from more than 60 countries around the world. Once studies are completed, Lincoln graduates can be found around the globe making a difference.

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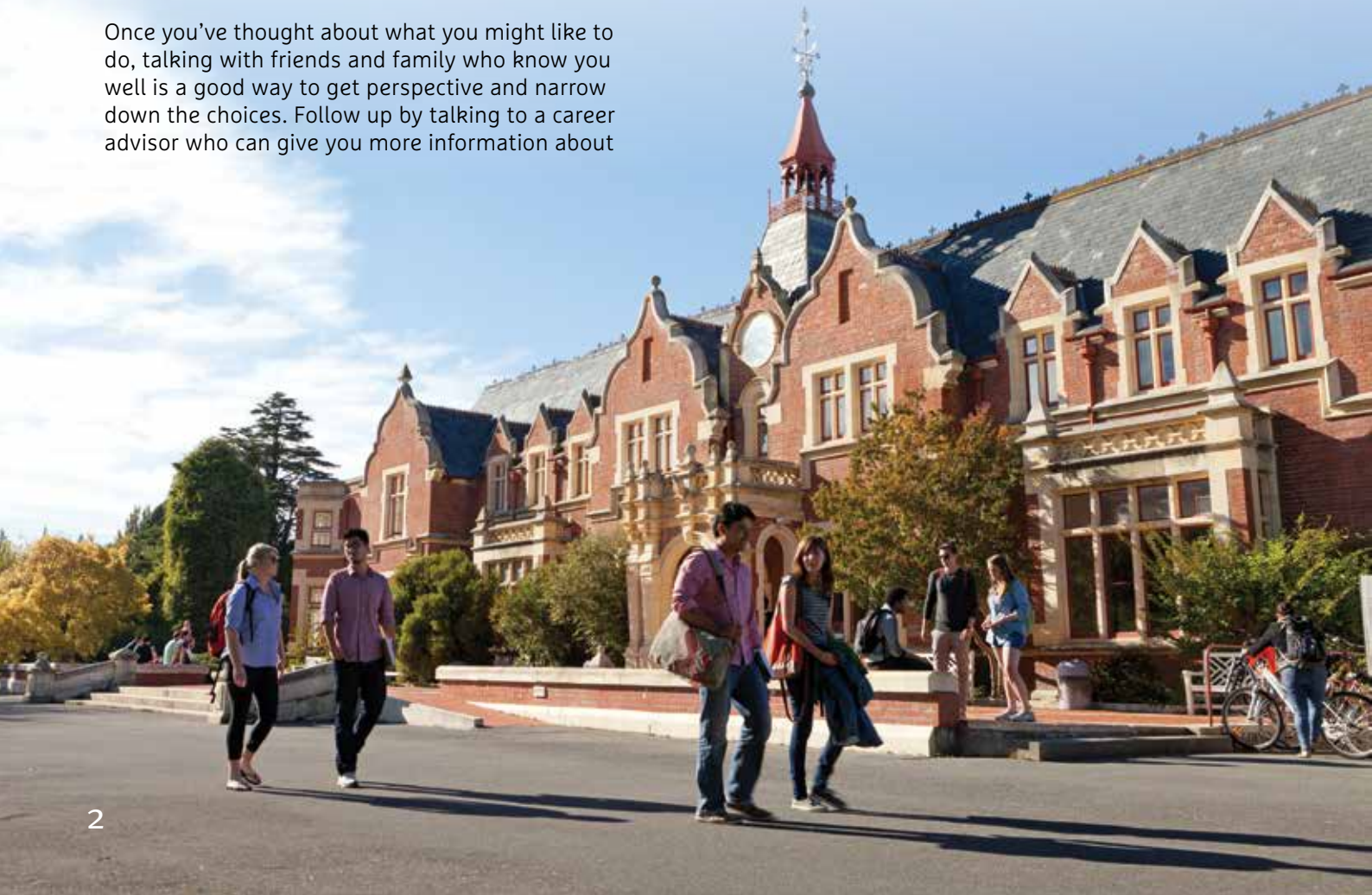
KIA ORA AND WELCOME

Whether you're looking at doing tertiary study for the first time, or adding to your educational achievements, you know the importance of selecting the right course of study and the right tertiary institution to carry out that study – the first step towards a future filled with opportunities.

Focusing on what you enjoy as well as your strengths is a good place to start to make the right decision for you. Think about what really interests you and why it interests you. What do you like about certain activities or environments? What skills do you already have or want to learn and use? What job would suit your personality? Are there a number of courses which match your preferences and skill set?

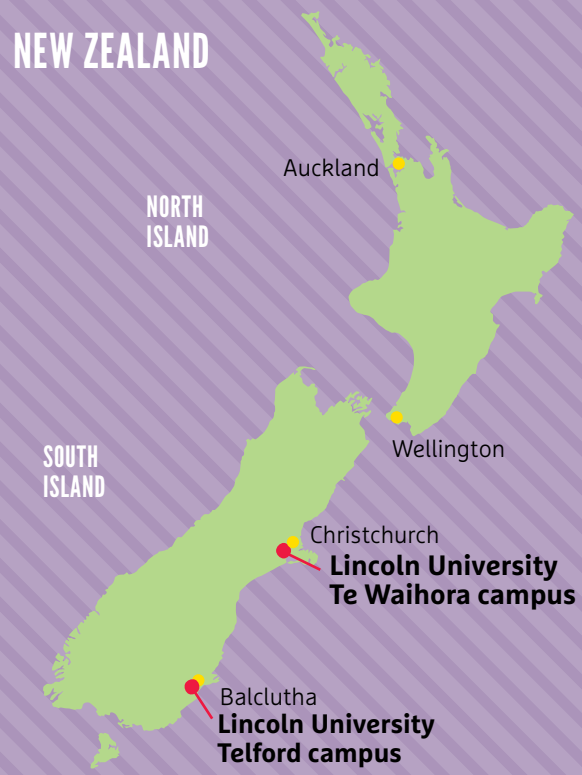
Once you've thought about what you might like to do, talking with friends and family who know you well is a good way to get perspective and narrow down the choices. Follow up by talking to a career advisor who can give you more information about various qualifications and how to achieve your career goals. Talking to people who have studied the subject you are interested in, or who are working in the field or job you are thinking about, can be really helpful and give you a realistic picture of what it will be like. It makes sense to decide what sort of job and lifestyle you want first, then work out what programme of study is best suited to make you employable in your chosen field.

Lincoln University offers a diverse range of programmes which prepare students for the demands of today's world. Course theory is underpinned by a practical focus which gives students valuable real world skills and experience. Our graduates move into the workplace with the knowledge and proficiency to be successful in a huge variety of careers all over New Zealand and the world.



Lincoln campuses

Lincoln University has two South Island campuses: **Te Waihora** in Lincoln, Canterbury and **Telford** in Balclutha, Otago.



Te Waihora campus (Lincoln, Canterbury)

Situated on 58 hectares of green space, the University offers modern teaching on this beautiful, established campus. Facilities include a comprehensive library, IT labs, free car parking, large dining hall and function centre, café and bar, a printery, a travel agency, banking services and excellent sporting facilities.

With a student population of 3500, from over 60 different countries, Lincoln University is an easy place to make friends. On-campus accommodation is home to around 600 students during the University year, including catered halls of residence, self-catered residential halls and student housing. For those living off-campus, there are regular bus services to and from central Christchurch.

Find out more: **www.lincoln.ac.nz**

Telford campus (Balclutha, Otago)

The Telford campus is our smaller campus and one of New Zealand's largest land-based vocational training providers. Located near Balclutha in South Otago, it is based on a 921-hectare commercial farm, offering real farming experience for live-in students. Telford offers practical training in agriculture, rural vet technician practices, dairying, stock and station, equine studies, forestry, horticulture, and apiculture (beekeeping).

Find out more: **www.telford.ac.nz**

Why study science?

RANKED #13
SMALL UNIVERSITY IN THE WORLD
BY QS RANKINGS 2015

A global population of approximately 9.2 billion people by 2050, combined with the effects of climate change, will result in a land, water and food security crisis. This is one of the key issues facing the global population in the near future. To address this issue, there is a continuous need for cutting-edge research to inform and upgrade industry knowledge.

Lincoln University is a highly research-intensive university. Our research revenue per academic is ahead of other universities by about 30 percent. We aim to continue to grow that percentage while using the calibre of our research to reinforce the value of our teaching.

Studying science at Lincoln University covers a range of courses involved in the use, management and stewardship of land, including agritech, conservation and ecology, food science, bioprotection and biosecurity, and land, water and environment.

We also lead the way in viticulture and oenology, with the first cool climate wine production programme in the English-speaking world. We have graduates employed in leading winemaking regions all over the world. As well as the very best researchers and lecturers in this field, students studying viticulture and oenology also have access to the Centre for Viticulture and Oenology (CV&O) based at Lincoln University. This is a leading research centre designed to help increase the economic value of the New Zealand wine industry and provide the expertise required for its further development.

Across all science disciplines, we use real world examples and practical experiences to equip our graduates with the knowledge, skills and values to make a difference. Students also develop transferrable skills during their qualification, including research and analytical skills, time management, and communication and IT skills.

This book explores undergraduate options in the field of science, and some of the pathways that our graduates have taken to get them where they are today. It is designed to show you pathways and opportunities you can take, and assist you in making the right choice for your future. To see the full range of qualifications on offer, visit: **www.lincoln.ac.nz**

What are your choices?

Depending on interests, time, and current qualifications, you can choose from the University's undergraduate diploma or degree programmes through to level courses.

Programmes on offer for science studies:

Agricultural Science			B	H	PG	M	PhD
Applied Science		D			PG	M	PhD
Agritech			B				
Bioprotection and Biosecurity			B				
Conservation and Ecology			B				
Food Science			B				
Land, Water, Environment			B				
Māori and Environmental Studies			B				
Rural Veterinary Technician Skills		D					
Science			B	H		M	PhD
Viticulture and Oenology			B	H	PG		

Note: Qualifications change from time to time, if you don't see the programme you are interested in please contact Student Liaison on 0800 10 60 10.

C **Certificates**
These are excellent entry qualifications for people who would like comprehensive introductory information, don't have University Entrance, or who are coming back to University and would like to prepare for further study.

D **Diplomas**
These are one-year programmes that focus on particular areas of interest.

B **Bachelors' degrees**
In most cases, the bachelor's degree allows you to follow the path you want, mixing optional subjects with papers that are core requirements.

Undergraduate qualifications usually commence in semester one (February), but it is often possible to start in semester two (July) depending on the qualification selected.

Lincoln University also offers a wide range of single or multi-disciplinary further study or research opportunities for those looking for highly respected postgraduate qualifications. Please view the Postgraduate prospectus or visit: **www.lincoln.ac.nz**

H **Honours degrees**
These offer the opportunity for those with high academic results to complete a fourth year of study on completion of their bachelor's degree.

PG **Postgraduate and graduate certificates and diplomas**
These allow you to transfer from another area of study to gain skills in an area of interest, or build on the bachelor's degree or equivalent already gained.

M **Masters' degrees**
These enable you to develop a thesis in a chosen area or undertake taught qualifications. They are the highest pre-doctorate qualification.

PhD **Doctor of Philosophy (PhD)**
These are available in most of the disciplines in which the University offers postgraduate studies. This is a further three years' study and a thesis on top of a Master's or Honours degree.

Best preparation for science studies

If you are still at school, we highly recommend you take subjects that are relevant to your chosen course of study to make the most of your time at Lincoln University.

The table below shows you the subjects you should consider at school if you are thinking of pursuing the qualifications listed. It is also a good way of finding out what you might want to study if you are interested in particular school subjects.

	ACCOUNTING	AGRICULTURE/ HORTICULTURE	ART/HISTORY/ CLASSICS	BIOLOGY	CHEMISTRY	COMPUTING	ECONOMICS	ENGLISH	GEOGRAPHY/ SOCIAL STUDIES	GRAPHICS/ DESIGN	MĀORI/TE REO	MATHS/ STATISTICS	P.E/OUTDOOR ED	PHYSICS	TOURISM
BACHELOR OF AGRICULTURAL SCIENCE		U		R	R	U	U	R				R			
BSC - AGRITECH		U		U		R		R				R			
BSC - BIOPROTECTION AND BIOSECURITY		U		R	U	U		R				R			
BSC - CONSERVATION AND ECOLOGY				R	U	U		R				R			
BSC - FOOD SCIENCE				R	R	U		R				R			
BSC - LAND, WATER, ENVIRONMENT				R	R	U		R				R			
BSc – MĀORI AND INDIGENOUS KNOWLEDGE OF THE ENVIRONMENT				R	R	U		R				R			
BACHELOR OF VITICULTURE AND OENOLOGY		R		R	R	U	U	R				U			
DIPLOMA IN APPLIED SCIENCE				R	R	U		R				R			
DIPLOMA FOR RURAL VETERINARY TECHNICIANS		U		R	R			R				U	U		

R Recommended subjects. U Useful subjects.

Lincoln University and Climate Change

The University's commitment to sustainability and climate change issues is apparent in our teaching and research, from cutting edge research around climate change, asking questions about adaptation and evolution in changing environments and a changing climate, to mitigating the impact of agriculture on the planet.

So if the global challenges of how to feed the world, protect the future and live well mean something to you, or climate change is on your radar, then you have found the university for you.

The details

Here is just a quick snapshot of our world-leading climate change research and educational initiatives, from detailed scientific studies on the mitigation of greenhouse gas emissions to alternative fuels and climate-resilient tourism.

1. Lincoln University is a partner in the NZ Agricultural Greenhouse Gas Research Centre (NZAGRC), a partnership between leading New Zealand research providers working in the agricultural greenhouse gas area. **http://www.nzagrc.org.nz/nitrous-oxide.html**
2. Lincoln University hosts the National Centre for Nitrous Oxide Measurement, part of the NZAGRC. The Centre can process more than 1000 nitrous oxide samples a day, making it one of the best specialist facilities of its type in the world.
3. Lincoln University contributes to the Global Research Alliance on Agricultural Greenhouse Gases which has 46 member countries. The Alliance focuses on research, development and extension of technologies and practices to grow more food (and more climate-resilient food systems) without growing greenhouse gas emissions. **http://globalresearchalliance.org/about/**
4. Lincoln University is involved in reducing greenhouse gas emissions on the farm by exploring the possibility of renewable fuel. The latest excitement is over Japanese grass Miscanthus x giganteus. **http://bioprotection.org.nz/news/can-farmers-help-address-climate-change**
5. Climate change has the potential to both increase New Zealand's attractiveness to tourists and undermine some of its core attractions. Lincoln University is involved in research projects around protecting and growing the tourism industry and developing adaptation strategies.
6. Lincoln University has established a nationwide Global Challenges Programme and Scholarships in response to challenges facing the planet today, including climate change, food production and security, depleting resources, urban sprawl, the loss of biodiversity, and pollution.
7. Lincoln University's academic staff are actively involved in teaching, researching and publication around climate change issues, as well as being involved on committees and boards dedicated to exploring climate change.
8. Lincoln University co-hosts the Waterways Centre (with the University of Canterbury) dedicated to improving New Zealand's waterways. Lincoln University undertakes extensive research on Banks Peninsula and elsewhere with respect to species conservation, and we host New Zealand's only Bio-Protection Research Centre.

To find out more, please talk to us.

Our programmes

Lincoln University's bachelor degrees include three LINC courses. These are common to all the degrees and give students a broad global understanding of issues impacting the future of the planet, as well as core learning skills necessary for University study.

LINC 101

Land, People and Economies
An introduction to the many perspectives involved in the use, management and stewardship of land, underpinned by the consideration of land as a resource, and the conflicts and tensions over land use and ownership. A range of topical issues are studied.

LINC 102

Research and Analytical Skills
An introduction to research, its role and function in the production and communication of knowledge. An introduction to critical thinking and the tools and techniques used in evidence-based decision-making and mathematics, statistics, and computing skills.

LINC 201

Sustainable Futures
An advanced discussion on sustainability issues in a global framework. This interdisciplinary course focuses on global sustainability with reference to social, environmental, cultural and economic aspects of sustainability.

BACHELOR OF Agricultural Science

www.lincoln.ac.nz/BAgSci

DURATION:
4
Years

TAUGHT AT:
Te Waihora campus
(Lincoln, Canterbury)

INTAKE:
Semester 1 Semester 2

Agricultural production is critical to feeding the world's population. Lincoln University's Bachelor of Agricultural Science (BAgSci) addresses the demands for farmers and primary producers to meet the requirements of international markets, including the European Union's expectation for food to be traceable from 'paddock to plate'.

Lincoln University has played a fundamental role in training managers, researchers, consultants and employees within the agricultural sector for more than 135 years. Our graduates have a reputation for 'hitting the ground running' because our qualifications are applied and relevant. Real world examples are integrated into the teaching programmes through case studies, field trips and tours. Students must also do a period of industry-based work experience as a requirement of the agriculture programmes.

The Bachelor of Agricultural Science can be awarded with Honours. This pathway is open to students who have completed their sixth semester (normally third year) of study and passed all courses at a sufficently high standard (B average in last two years of study).

Entry requirements:

- University Entrance through NCEA, or an approved equivalent qualification.
- If English is not your first language other entry requirements will apply.

Refer to **www.lincoln.ac.nz** for more information.

Recommended preparation:

Maths, English, Biology and Chemistry would be advantageous.

Programme requirements:

- Pass at least least 480 credits (32 courses)
- Pass all compulsory courses
- Complete no more than 165 credits (11 courses) at 100 level
- Complete at least 150 credits (10 courses) at 300 level
- Complete all practical work requirements.

Practical work:

28 weeks in total:

- One dairy farm (minimum 10 weeks - maximum 14 weeks)
- One sheep/beef farm (minimum 10 weeks - maximum 14 weeks).

Any time remaining can be on a different type of farm or in an allied industry of your choice.

Career outcomes:

The BAgSci is a flagship degree recognised by industry, which traditionally offers a pathway into consultancy, research, technical roles and farm management. Demand for graduates has been very strong in recent years and graduates can pick from a wide range of options across traditional science/technical opportunities and agribusiness.

Programme content

Content can include topics such as:

- Animal Science
- Land, People and Economies
- Research and Analytical Skills
- Primary Industry Systems
- Chemistry
- Plant Science
- Soil Science
- Livestock Production Science
- Sustainable Futures
- Principles of Farm Management
- Plant Production Systems
- Biometrics
- Soil Management.

>> PROGRAMME CONTACTS

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BACHELOR OF
Science

www.lincoln.ac.nz/BSc

DURATION:
3
Years

TAUGHT AT:
Te Waihora campus
(Lincoln, Canterbury)

INTAKE:
Semester 1 Semester 2

As our world changes, we need highly skilled individuals who can tackle the big issues. How do we feed the world while minimising environmental impact? How do we protect our environment from biological threats? How do we maintain good environmental quality? These are the pressing questions facing scientists of the future. As a Lincoln University Bachelor of Science (BSc) graduate, you can help answer them.

Lincoln University's Bachelor of Science programme is applied and context-based designed to produce graduates who have a firm grounding in the basic sciences. These can be applied to processes in the environment, in ecosystems, or at the molecular level. This will contribute to sustainable management and conservation of land, water and air and the country's natural resources.

This degree has seven majors to choose from: Agritech, Bioprotection and Biosecurity, Conservation and Ecology, Food Science, Individual, Land, Water, Environment and Māori and Indigenous Knowledge of the Environment.

Entry requirements:

- University Entrance through NCEA, or an approved equivalent qualification.
- If English is not your first language other entry requirements will apply.

Refer to **www.lincoln.ac.nz** for more information.

Recommended preparation:

A good grounding in the science subjects from school: Chemistry, Physics, Biology, Mathematics/Statistics. Computing is a useful option too.

Programme structure:

- Pass at least 360 credits (24 courses)
- Pass all compulsory courses
- Complete no more than 165 credits (11 courses) at 100 level
- Complete at least 75 credits (5 courses) at 300 level
- Meet the requirements of at least one of the named Bachelor of Science majors.

Majors:

Agritech

The Agritech major will produce graduates who are highly skilled in using information technologies to create value and sustain performance in land-based industries. Graduates will be able to develop, apply and evaluate appropriate information technology solutions to important challenges for optimising land-based performance. A major in Agritech will enhance and support the sciences that underpin primary industries. This qualification will produce graduates who have the unique combination of the knowledge and skills to utilise digital technologies, and the knowledge of the science behind primary industries - resulting in the ability to find IT-led solutions to production, environmental and land-use problems.

Career outcomes

The application of advanced information technologies in the land-based sectors is increasing and there are diverse employment opportunities for graduates from this programme. BSc-Agritech graduates have unique skills that are highly-valued by a range of employers across the public and private sectors. Possible employers might include: precision agriculture and environmental management consulting firms, agricultural, horticultural, or forestry companies, the wine industry, and local and central government. Potential jobs might include: precision agriculture consultant, natural resource analyst, precision technology software/hardware developer, precision technology specialist.

BACHELOR OF SCIENCE

(continued)

Bioprotection and Biosecurity

The Bioprotection and Biosecurity major focuses on providing students with an understanding of the organisms that may damage plants and animals, and how to manage them. Students will develop the skills and knowledge to identify these organisms, and to understand their biology, ecology and epidemiology. You will learn pest risk assessment methods and modern methods of managing these organisms within New Zealand farming and conservation systems.

You will also learn about the role of New Zealand and international regulatory agencies that oversee biosecurity methods, including topics in plant protection, human and animal health, food safety standards and agreements that protect international biodiversity.

Lincoln University is the sole provider of this type of degree and has the greatest concentration of bioprotection and biosecurity researchers in New Zealand. The Lincoln University lecturers have strong research links with external agencies and the national Bio-protection Research Centre is located at the University.

Career outcomes

Graduates from this major can expect to find careers as a consultant for the agricultural and horticultural industries and primary industry groups such as NZ Winegrowers, Horticulture NZ and DairyNZ, a biosecurity officer or advisor for the Ministry for Primary Industries, a biosecurity advisor for government departments such as Department of Conservation, Ministry of Health, EPA, or technical and research roles within the agritech industry and Crown Research Institutes.

Conservation and Ecology

The Conservation and Ecology major focuses on giving you the practical skills, experience, and industry connections you will need to contribute to ecological and conservation activities of government and private agencies in New Zealand and beyond. Our courses include hands-on field trips and laboratories as well as weekly lectures. Courses in the first year will provide a solid grounding in the biological sciences – biology, ecology, plant and animal sciences. Practical-based courses will integrate the different focus areas of your degree at both second and third year levels. Practical experience is also available through optional paid summer scholarships working with ecologists and conservationists and through third year research placements.

At Lincoln you'll study with one of the most experienced groups of ecological researchers in a New Zealand university. Lincoln University's expertise in conservation and ecology includes wildlife biology, entomology, plant ecology, urban ecology, restoration ecology, biosecurity, evolutionary biology, vertebrate and invertebrate pest management, and weed management – which are reflected in second and third year course options.

Career outcomes

Conservation and Ecology graduates have gained employment in ecology, conservation, nature restoration, and wildlife biology in a wide range of organisations, including local and regional councils, the Department of Conservation, Fish and Game, the Ministry for the Environment, the Ministry for Primary Industries, Landcare Research, environmental consultantancies, non-governmental conservation organisations, and universities. Others have continued their studies at postgraduate level and gone on to careers around the world.

FACT

LINCOLN UNIVERSITY IS HOME TO A FULL ENTOMOLOGY RESEARCH MUSEUM

Food Science

The Food Science major focuses on something that we all need - food. Food also happens to be key to New Zealand's economy. Graduates of this major will be the drivers of the New Zealand economy of the future and will possess the scientific and personal skills to make you highly employable not only in the New Zealand food industry but globally. The course is taught by world-leading academics and covers practical and theoretical aspects of food composition, processing, microbiology, safety, nutrition, sensory evaluation and consumer-focused product innovation.

Guest speakers from industry, together with problem-based active learning tasks, ensure students have a hands-on engagement with potential employers from the beginning of their studies.

Career outcomes
Graduates for this major can expect to develop careers in product development and quality assurance within the food industry, both within New Zealand and internationally.

Accreditation: The New Zealand Institute of Food Science and Technology has accredited the Food Science major of the BSc. Those who complete this major will be entitled to Institute membership.

BACHELOR OF SCIENCE

(continued)

Individual

An Individual major in Lincoln's BSc enables you to create your own science major in an area not covered by the named Majors: for example in biochemistry, genetics, animal science or plant science. This Individual major offers flexibility but must have an area of focus, which is determined by the courses that you choose as your electives. It is also possible in an Individual major to combine different disciplines: for example you may be interested in ecology and soil science, or animal science and genetics.

Career outcomes

The applied and context based nature of the science taught, combined with research-led teaching means that Lincoln University BSc graduates are up-to-speed with current practices and trends in industry and research. This makes them work-ready and highly sought after by a range of employers in land-based industries. An Individual major means that you are able to create a major in your particular interest area, with an area of focus that is highly marketable.

Land, Water, Environment

The Land, Water, Environment major of Lincoln University's Bachelor of Science focuses on the science behind the soil-water-biophysical landscape; their interactions and their effects on the environment. The science taught is applied. For example, you learn about the chemistry of nitrogen in the context of the N-cycle, nitrate leaching, the dynamics of nitrous oxide gas emissions and its contribution to greenhouse gasses. Take this major if you are interested in environmental science and would like to work in a job connected with the sustainable management of the land resource. Graduates of this major have the skills to work in multidisciplinary teams addressing real-world environmental challenges.

Courses in the first year provide a solid grounding in the sciences: chemistry, biology, environmental physics, earth science, soil science. These disciplines progress through the second and third years to focus on soil science, biogeochemistry, climate science, geomorphology and soil resources, and water science. A capstone course at the 300-level uses problem-based learning and group work in the context of real-world environmental problems to apply the concepts and practical skills learnt in this major.

Career outcomes

Likely employment areas include: land and water resource science, irrigation technology development, climate change mitigation and management, groundwater and critical zone monitoring and modelling, bioremediation and restoration of degraded land, wetland chemistry and management, research, teaching, environmental policy for government, and environmental advocacy.

Potential employers include: local and regional governmental organisations, land-based primary production industries, irrigation companies, the Ministry for Primary Industries, the Department of Conservation, Forest and Bird, the Ministry for the Environment, environmental consulting organisations, Crown Research Institutes, and educational providers.

Māori and Indigenous Knowledge of the Environment

Lincoln University's Māori and Indigenous Knowledge of the Environment major examines the foundation of science and Māori and Indigenous people's knowledge frameworks. Students will explore the associated values and processes, comparing and contrasting their application to natural resource management and development.

This major facilitates fostering a better understanding of the Treaty of Waitangi, tikanga and kawa Māori, and kaupapa Māori approaches.

Graduates of this major will have a philosophical understanding of indigenous knowledge and an appreciation of the cultural-political landscape as contextual drivers for the application of science.

Career outcomes

Graduates of the Māori and Indigenous major will be well-placed to engage with the Māori economic and cultural sector, which was measured at over NZ$40 billion last year, and is one of the country's fastest growing economies. Graduates can expect to find employment working for and working with the 15% of NZ farmers who are Māori, the Māori-owned tourism sector and with post-settlement iwi authorities, rūnanga offices and Māori-owned commercial operations.

They would be expected to find employment opportunities with New Zealand science providers, eg Crown Research Institutes and universities, Māori entities like iwi organisations, large incorporations and trusts with development and environment agendas. Career prospects also exist within local and regional governmental, and Central Government organisations and agencies who have a range of legislative and Treaty of Waitangi obligations; the land-based primary production sector; environmental consulting organisations; educational providers in the primary, secondary and tertiary sectors. Furthermore, pathways exist for postgraduate study and research is also an option for qualifying students.

> "Lincoln is right at the cutting edge in this new era of research. Studying at Lincoln meant I could be part of that exciting research initiative."

>> PROGRAMME CONTACTS

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BACHELOR OF Viticulture and Oenology

www.lincoln.ac.nz/BVO

DURATION:
3
Years

TAUGHT AT:
Te Waihora campus
(Lincoln, Canterbury)

INTAKE:
Semester 1 Semester 2

Lincoln University delivered the first cool climate wine production programme in the English-speaking world, and we've been leading the way ever since.

Lincoln University's specialist Bachelor of Viticulture and Oenology degree (BV&O) prepares graduates for a great career in the wine sector. It covers basic science preparation through to advanced viticulture and wine science, pest and disease management, biometrics and wine chemistry. You can then tailor the rest of your degree using electives to fit your areas of interest and individual career aspirations.

Lincoln University's BV&O will also take you places. Our graduates are all over the world; from the Gibbston Valley to the Hunter Valley, from Blenheim to Bordeaux.

Entry requirements:

- University Entrance through NCEA, or an approved equivalent qualification.
- If English is not your first language other entry requirements will apply.

Refer to **www.lincoln.ac.nz** for more information.

Recommended preparation:

A good grounding in sciences can be useful but is not essential.

Programme requirements:

- Pass at least 360 credits (24 courses)
- Pass all compulsory courses
- Complete no more than 165 credits (11 courses) at 100 level
- Complete at least 75 credits (5 courses) at 300 level
- Complete all practical work components
- Attendance at multi-day field tour, taken in the final year of study.

Practical work:

18 weeks in total:

- 6 consecutive weeks in a commercial vineyard
- 6 consecutive weeks in a commercial winery
- 6 consecutive weeks in an allied industry, e.g. wine bar or shop, winery laboratory, commercial vineyard or brewery.

Career outcomes:

Graduates of the Bachelor of Viticulture and Oenology programme move into a range of careers dependent on the courses they chose in their programme of study. From primary industry through to commerce and consultancies, examples are: viticulturist, vineyard foreman, vineyard manager, cellar manager, winery lab manager, winemaker, marketing manager, sales representative, and wine writer.

Programme content

Content can include topics such as:

- Biological Sciences
- Plant Science
- Chemistry
- Soil Science
- Introduction to the Winegrowing Industry
- Horticultural Systems
- Biometrics
- Viticulture
- Principles of Wine Science
- Wine Quality Assessment.

>> PROGRAMME CONTACTS

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Barbara Nicholson
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P: 03 423 0061

STUDENT LIAISON TEAM
E: land@lincoln.ac.nz
P: 0800 10 60 10
03 423 0000

DIPLOMA IN
Applied Science (Level 5)

www.lincoln.ac.nz/DipApplSc

DURATION:
1 Year

TAUGHT AT:
Te Waihora campus
(Lincoln, Canterbury)

INTAKE:
Semester 1 Semester 2

Entry requirements:

- University Entrance through NCEA, or an approved equivalent qualification.
- If English is not your first language other entry requirements will apply.

Refer to **www.lincoln.ac.nz** for more information.

What you will study:

Lincoln University's Diploma in Applied Science (DipApplSc) provides students with basic competency in a range of areas of science and an appropriate foundation for further study in any branch of the natural sciences. Students will study courses from the Bachelor of Science degree as well as chosen electives from any 100-level course across Lincoln University's bachelor degrees.

Programme content

Students should select eight courses (120 credits) at the 100 or 200 level chosen from the degree regulations for the Bachelor of Agricultural Science and/or the Bachelor of Science.

Career outcomes:

Students who choose to leave with their Diploma in Applied Science can gain entry into many industry sectors, eg research, local government, administration, agriculture.

>> PROGRAMME CONTACTS

Rainer Hofmann
Course Advisor, Associate Professor in Plant Biology
E: rainer.hofmann@lincoln.ac.nz
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03 423 0000

DIPLOMA FOR
Rural Veterinary Technicians (Level 5)

www.telford.ac.nz/DipRVT

DURATION:
1
Year

TAUGHT AT:
Telford campus
(Balclutha, Otago)

INTAKE:
FEB
February

Students with an interest in the health and handling of large animals such as horses, cattle, deer, sheep, goats, and alpaca from a veterinary perspective should enrol in this interesting and challenging course. Rural Veterinary Technicians (RVT) students may become, for example, farmers, scientists and rural veterinary technicians with an interest in large animals.

RTV classes are small, with a hands-on training emphasis. Students develop their skills on the Telford farm and with local veterinarians in the surrounding areas. This equips graduates with industry best practice knowledge and skills.

Entry requirements:

Applicants must:

- Have completed four years of secondary education and achieved NCEA Level 2 with NCEA Science Level 1 and at least 12 credits in Chemistry and/or Biology at NCEA Level 2 or equivalent
- Be aged 18 years or over be physical and medically fit to manage the work without putting themselves and/or others at risk
- Have adequate literacy and numeracy skills
- Be proficient in English.

Places are limited, so there may be an interview as part of the selection process

What you will study:

During the year you will develop a range of competencies relating to rural animals, work ethics and professional behaviour.

Programme content

Includes:

- Anatomy and physiology
- Diseases
- General business practices
- Rural animal reproduction
- Rural animal handling and production
- Surgery.

Career outcomes:

On successful completion of this programme graduates will be able to work competently as rural veterinary technicians in a veterinary practice.

They could also gain entry-level employment as rural veterinary technicians in allied sectors such as dairy farming/manufacturing, retail outlets, animal research, artificial breeding services and TB testing. High performing graduates may pursue higher education to become technologists or professionals in the animal science field.

>> PROGRAMME CONTACTS

Suzanne Carruth
Student Liaison Officer
E: suzanne.carruth@telford.ac.nz
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STUDENT LIAISON TEAM
E: land@lincoln.ac.nz
P: 0800 10 60 10
03 423 0000

Where are Lincoln University graduates?

LINCOLN GRADUATES

KELSI GOUGH

Bachelor of Agricultural Science (First Class Honours)
Rural Manager, FMG

Lincoln's excellent reputation in the agricultural sector was a major reason for Kelsi Gough choosing Lincoln. However, her decision was cemented when she heard a number of former students reminiscing fondly about their Lincoln days. "This is what tipped the scales in favour of attending Lincoln over other universities offering similar courses," she says.

She says she enjoyed the variety of courses available to her at Lincoln. "As there are few prerequisites in the Agricultural Science degree, the direction you take is really up to you. During my four-year programme, I studied a diverse range of subjects, including soil, animal and plant sciences, farm management, law, economics and rural valuation." She says the variety gave her a good grounding and knowledge across a number of subjects. "This makes me confident in my ability to relate to a number of farmers and rural professionals in the agricultural sector.

"Just as valuable as the degree you receive is the range of people at Lincoln who hail from all over New Zealand and the world. A good number of these people also seek employment within the primary sector when they complete their studies, which results in a fantastic network of similar-minded people with a range of expertise."

ABBY BATE

Master of Applied Science
Research Assistant and Gas Analysis Lab Manager, Center of Microbial Oceanography Research and Education (C-MORE) Institute

Born and raised in North Canterbury, former student Abby Bate spent her early 20's living in Christchurch while studying towards her undergraduate and postgraduate degrees.

She completed her Master of Applied Science at Lincoln in 2015 and now lives in Honolulu, where she works as a research assistant and gas analysis lab manager at the University of Hawaii's Center of Microbial Oceanography Research and Education (C-MORE) Institute.

"After I completed my undergraduate degree, I decided to study towards a Master of Applied Science at Lincoln," she says.

She rates the expertise of her lecturers at Lincoln University as second-to-none and her best memories are of the support and encouragement she received from the academic staff.

For her Master's degree, she studied the ecotoxicology of silver nanoparticles in soil, using earthworms as a biological indicator of toxicity."

Her study at Lincoln thoroughly prepared her for the career she has established at C-MORE in Honolulu.

HYMMI KONG

Bachelor of Science
Studying towards BSc (Honours), Lincoln University

Hymmi Kong decided to attend Lincoln University following a recommendation from her older sister, who is also a Lincoln graduate. She received her Bachelor of Science degree in 2015 and worked at Plant and Food Research during the summer break, before returning to Lincoln as an Honours student.

During her undergraduate studies, she particularly enjoyed participating in practical exercises, including lab sessions and field trips, as well as visiting farms and laboratories.

Hymmi appreciated the fact that the computer labs in the Landscape Architecture building were usually open until late at night, which allowed for flexible study hours. She also enjoyed the gym facilities and group exercise classes, and says they helped her to release stress after a long day.

Originally from Hong Kong, she is thrilled to have met a lot of fellow international students on campus and says spending time socialising with them has added a great deal of extra joy to her university life. “We love having gatherings in the weekends, as well as going on road trips during the breaks. We share different stories to do with our lives and learn all about the cultures of different countries,” she says.

LAURA KEENAN

Bachelor of Agricultural Science (First Class Honours)
Farm Environmental Consultant, Soil Matters

After graduating from Lincoln in 2015 with a Bachelor of Agricultural Science (First Class Honours), Laura Keenan was offered a position as a Farm Environmental Consultant at a soil consultancy company that services the South Island.

“My role includes in-depth nutrient modelling, sales, purchasing and planning. We also provide detailed farm scenario analysis reports, in direct alignment with farmers’ goals. This allows landowners to better manage risk and ensure they are compliant from a regional council perspective. In addition, I act as a Soil Consultant for Soil Matters, assessing clients’ individual soil fertility needs from soil testing, fertiliser recommendations and crop and pastoral advice.”

Laura says her studies at Lincoln University thoroughly prepared her for these roles. “I found the agricultural and agribusiness courses really enjoyable and relevant to a future career. The research facilities are excellent as well. Completing a dissertation and research project also allowed me to grasp all elements of academic research and its importance in New Zealand agriculture.”

LINCOLN GRADUATES

ERIN MCILLMURRAY (NEE QUINN-WALSH)

Bachelor of Science (Hons)
Strategy Analyst, Livestock Improvement Corporation (LIC), Hamilton

Erin McIllmurray was always fascinated by science and enjoyed studying biology. "I really like to explore the world, concepts, ideas – anything and everything. I like to experiment to find out why things do or don't work, and I love problem-solving."

Erin's passion led her to study for a Bachelor of Science. She graduated with Honours and started working at Livestock Improvement Corporation as a Research Assistant. Erin was able to apply her Honours research directly to her role. "I was involved in developing the breeding scheme for LIC's subsidiary Deer Improvement. My honours project was in deer reproduction, and my courses provided me with a good base understanding of epigenetics. This was an excellent first role for me to have."

When the opportunity arose to progress to a Strategy Analyst role, Erin was prepared. "My science degree meant that I could translate 'science' to others in the business and look at data and deriving stories which others can understand."

Erin's advice for prospective students is that a science degree can lead to many different opportunities. "A science degree doesn't mean that you have to work in science for the rest of your life. While it' a good place to start, a science degree teaches you a way of thinking that will be invaluable for the rest of your career."

BEDE MCCARTHY

Bachelor of Science; Master of Science
Entomology Technician, Ministry for Primary Industries

Bede McCarthy attended Lincoln High School, and knowing that Lincoln University was nearby, he investigated the offerings and opportunities of the Ecology department, and found it to be a good fit for his interests.

Bede wasn't disappointed. He gained knowledge in "a broad range of practical laboratory and field techniques, and concise communication, both written and spoken". He also enjoyed the close interaction amongst staff and students.

"Close interaction with the CRIs (Crown Research Institutes) at Lincoln led to several short-term and part-time jobs during and after my studies. This work gave me the contacts and experience that helped me get the permanent, full-time position I now have."

Bede reiterates his own success in offering advice to potential students of Lincoln University: "Gain as much practical experience as you can, working on projects other than your own. These can be projects from staff members, other students or those involved at the CRIs. Also don't skip on the core skills of writing, presenting and analysing data."

SAMANTHA READ

Bachelor of Science (Ecology and Conservation) and (Bioprotection and Biosecurity)
Research Technician, Plant and Food Research

Samantha Read attended St. Margaret's College in Christchurch, where she heard of Lincoln University and chose it because of its "small, close-knit community that offers lots of extra tuition, if required, with lecturers who care about your progress." She also expressed that Lincoln has a lot of choice for specialties that are not offered at other universities.

Samantha attributes her current role at Plant and Food Research as a molecular technician to background knowledge and work experience gained from her studies at Lincoln University. "In this role, I use molecular diagnostic techniques to determine the presence of insect or plant diseases."

Some of the important skills Samantha gained while at Lincoln were the abilities to "design and set up robust, unbiased experiments, write scientific reports/journal articles to publishing standard, and more confidently give presentations."

The most enjoyable aspects of her studies were the 'hands-on' laboratories and field trips she participated in while at Lincoln. "You may not know exactly what you want to study straight away, but after taking a variety of courses, it does become clear what you are interested in most. The more time and effort you put into study, the greater the rewards are for the future."

LEN IBBOTSON

Bachelor of Viticulture and Oenology
Viticulturalist, Terra Sancta Wines

Len Ibbotson, originally from Hawke's Bay, graduated from Lincoln in 2012 with a Bachelor of Viticulture and Oenology. He now works as a viticulturalist at Central Otago's Terra Sancta Wines.

"I couldn't find the type of programme I wanted to study at other universities, and coming to Lincoln was a good opportunity to travel to the South Island. It also made sense to study plants at a university with a strong land-based history," he says.

He was impressed with the great choice and variety of courses available. "I also loved the beautiful campus and the good options for food and coffee. There's a great gym too, and a nice mix of new and classic lecture halls."

Len says the most valuable aspect of his study was the balance between plant and wine science, and the practical wine and grape management tools he received. One of his best memories involved a field trip to Hawke's Bay and Auckland. "It was a great experience. The visits were very informative and a load of fun," he says.

Len still keeps in touch with staff and friends from Lincoln University and says he loved meeting a lot of diverse and interesting people on campus. "I also really enjoyed being a student and having time to absorb new information. And you can't beat warm lecture theatres when it's miserable outside," he says.

Employment opportunities

www.lincoln.ac.nz

CAREERS IN SCIENCE

Graduates of Lincoln University find employment throughout New Zealand and the world in both the rural sector and urban centres with a wide range of commercial, government, research and private enterprises.

Lincoln University's science programmes are specifically focused on the land-based sectors and we have the advantage of being close to industry right along the supply chain. This puts science in the perspective of the end outcome, answering the 'so what' of the science and looking at the change that science, and the knowledge that comes from it, can make in the world.

Students all take three LINC courses that are common across all our undergraduate degrees. These allow science students to look at the global context of their study alongside students from other discipline areas eg commerce, marketing, agribusiness, environmental management and so on. What this means is that Lincoln University's science graduates come out with a broad, global context of the importance and the use of their science and how it can be applied to address such things as mitigating the impact of agriculture on the environment, increasing primary productivity, or affecting the taste of foods and wine for consumers.

Graduates find rewarding careers in consultancy, research institutes or commercial R&D (research and development) operations, in small niche scientific firms or contributing to multinationals. Science within the spheres of bioprotection and ecology are highly sought after due to New Zealand's reliance on strict controls to protect our natural resources.

Graduates with Lincoln University's science credentials are found throughout the world, from winemaking regions across the globe to large and small farming operations here in New Zealand. Many graduates find work in research institutes contributing to the development of New Zealand's economic driver, the primary sector.

Lincoln University has a Careers and Employment office that can provide you with support and guidance as you navigate your way through your career choices.

To find out more about the opportunities in science careers contact: **michelle.ash@lincoln.ac.nz**

Planning your study and applying

www.lincoln.ac.nz

You can apply online using our MyLinc system through the University website but before you do make sure you have done a bit of homework.

Take some time to decide what level of study best suits you and your abilities and aspirations, as well as to better understand how study is structured at Lincoln University.

There are a lot of options and study levels progress from level 4 to level 10. Most of our undergradute bachelor's degree students start directly into the first year of their degree - but if you feel you need to upgrade your academic skills, your English language skills, or want a one-year course to lead straight into a particular career, Lincoln University has those bases covered too.

There are many pathways to a bachelor's degree. After successfully completing three years and gaining the undergraduate degree you could go on to postgraduate study if you want to gain more knowledge and become more specialised.

To find out more visit **www.lincoln.ac.nz** or see our Certificates and Diplomas or Undergraduate prospectuses.

How to apply

1. Decide on your programme
2. Apply – click on the Apply Now button on our website or complete your application in **mylinc.nz**

We will assess your applicaton and contact you with an offer if you are successful.

3. Accept your offer through our online system, mylinc
4. Enrol in the individual courses that will make up your qualification programme. Enrolment opens 1 October each year. Enrolment can only take place once an offer of placement has been made and accepted.

Student Liaison team

Our Student Liaison team will be the first point of contact for you as a future student. They can provide you with any information you need, and answer any questions you may have about course planning, applying or life at Lincoln University. The Student Liaison team also visits secondary schools and attends career expos in all regions.

Jaime Thomson
Student Liaison Manager

Jaime leads the Liaison team and is the key contact for schools in Southland, South Canterbury (including Oamaru), and Christchurch.

Ekara Lewis
Māori Outreach Coordinator

Ekara is the key contact for schools in Gisborne and is available to provide support and advice for all future and current Māori students.

Sophie Prangnell
Senior Student Liaison Officer

Sophie is the key contact for schools in Hawke's Bay, Wellington, Wairarapa, Christchurch and Australia.

Kimberley Forbes
Student Liaison Officer

Kimberley is the key contact for Otago, Nelson/Marlborough, Wanganui, Manawatu and Christchurch.

James Agnew
Student Liaison Officer

James is the key contact for Bay of Plenty/Coromandel, the Central Plateau (North Island), Taranaki, Westland and Christchurch.

Suzanne Jamieson
Student Liaison Officer

Suzanne is the key contact for Auckland, Waikato and Northland.

Anna Soboleva
Recruitment Officer, International

Anna is the key contact for international students already studying in New Zealand who would like to study at Lincoln University.

Suzanne Carruth
Student Liaison Officer

Suzanne is located at our Telford campus, and covers the North Island and the lower South Island.

Te Waihora (Lincoln) campus contacts

Freephone: 0800 10 60 10 (within New Zealand)

Phone: +64 3 423 0000 (international)

Email: land@lincoln.ac.nz

Telford (Balclutha) campus contacts

Freephone: 0800 83 53 67 (within New Zealand)

Phone: +64 3 419 0300 (international)

Email: enquiry@telford.ac.nz

WHO CARES ABOUT THE Environment

» We do!

Key to all that Lincoln University does is an **awareness of the environment** - from our course content, to our native plantings, to the paper this publication is printed on.

As New Zealand's specialist land-based university, our mission is to transform land, people and economies, and we aspire to do this without negatively impacting our environment.

Land is something we value. It is, literally, our world.

In 1993 the University adopted an **Environmental Charter and an Environmental Policy** (the first among New Zealand tertiary establishments) to support the work of the already established staff-student group called Lincoln Environmental Organisation (LEO). This led to the formation of a formal Environmental Task Force and the revision of the Policy in 2003 and 2010 – giving the University what it now has: the **Sustainability Advisory Group for the Environment** (SAGE). SAGE works alongside LEO to ensure the University 'treads lightly on the Earth', ensuring we live up to our values in the areas of sustainable practices, stewardship of our own environment, and protection of the wider environment.

The University's School of Landscape Architecture building was built with **locally sourced materials** with a life span of over 100 years and which require minimal maintenance. In this building and across campus, the University continues to make a difference with significant efforts in **energy conservation, water management, resource recovery and waste management.**

Lincoln University is a major supporter of the **Lincoln Envirotown Trust** and provides office space and resources for the Chair of the Trust.

All our publications are printed on **environmentally responsible paper**, produced using Elemental Chlorine Free (ECF), Third Party Certified pulp sourced from well managed and legally harvested forests, and manufactured under the strict ISO14001 Environmental Management System.

New Zealand's native biodiversity makes this country unique and Lincoln University is very proud of our **park-like campus, gardens and the native plantings** we have both on campus and extensively at the Lincoln University Dairy Farm.

The Māori outreach programme and the work of staff across the University aims to facilitate an understanding of, and acknowledges **Māori communities, iwi, hapu, whanau and their affinity with their whenua and their environments**. Formal partnerships and informal collaboration will ensure a continuing mutual understanding and respect for the land, consistent with the concept of kaitiakitanga (stewardship).

ECF ELEMENTAL Chlorine FREE ISO 14001 WMF WELL MANAGED FORESTS

BE PART OF THE GENERATION THAT WILL MAKE A CHANGE. STUDY AT LINCOLN.

RANKED QS WORLD UNIVERSITY RANKINGS 2015/16

QS WORLD UNIVERSITY RANKINGS by subject

QS STARS RATED FOR EXCELLENCE 2015

www.lincoln.ac.nz
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ADDITIONAL INFORMATION
We have range of other publications and resources available for your reference, visit **www.lincoln.ac.nz/brochures.**

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Lincoln University
Te Whare Wānaka o Aoraki
AOTEAROA • NEW ZEALAND

New Zealand's specialist land-based university