Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI099
Project title:	**Does AI threaten statistical disclosure control methods?**
Discipline:	Ngā Motu Whakahī - Te Kura Mātai Rorohiko / School of Computer Science
Supervisor(s)	Dr Daniel Wilson Dr Kerry McInerney
Contact details	daniel.wilson@auckland.ac.nz
Skills Needed	• Familiarity with a programming language, Python or R.

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Statistical disclosure control (SDC) methods are used to protect the confidentiality of people when official statistics are publicly released. One of the primary methods of SDC is called Random Rounding to Base 3 (RR3). In this summer project, we build on prior work and test whether RR3 may be vulnerable to attack using an AI method named Reinforcement Learning. The overarching question is: are confidentiality methods that are currently in-use fit for purpose in today's digital environment? You will be contributing to a larger research project that will help gather information on the robustness of confidentiality methods, with the aim of making more informed decisions regarding the protection of the public's data.

This summer scholarship is funded from the Faculty of Science funded grant: "Data confidentiality methods and Māori data sovereignty."

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI145
Project title:	**Virus Activated Cancer Prodrugs**
Discipline:	Ngā Motu Whakahī School of Chemical Sciences
Supervisor(s)	Dr Alan Cameron
Contact details	Alan.cameron@auckland.ac.nz
Skills Needed	• A background in organic or medicinal chemistry undergraduate courses

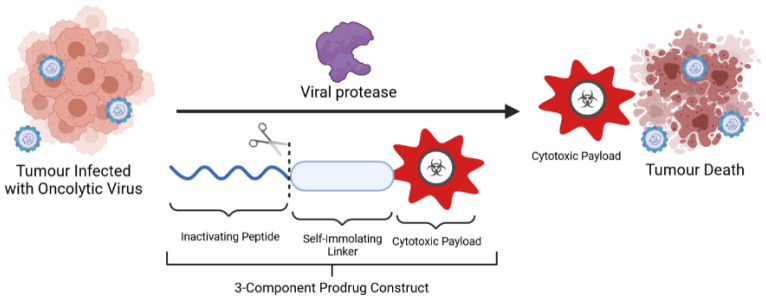
Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Oncolytic viruses are an emerging class of therapeutics for cancer treatment. These viruses selectively infect and lyse cancerous cells. However, these therapies still suffer from certain limitations, perhaps the greatest of clearance of the virus prior to complete tumour destruction due to the patient's immune system. To elicit maximal efficacy, these viruses can be used in combination with chemotherapeutics or radiotherapy.
The presence of viral infection provides new opportunities to develop selectively targeted chemotherapeutics.

This project seeks to develop a novel Virus-Directed Enzyme Prodrug Therapy (VDEPT). Cytotoxic payloads will be developed and conjugated to an inactivating peptide sequence that is selectively cleaved by the protease of a promising oncolytic virus to release the active cytotoxin selectively in the tumour microenvironment. Thus, the project seeks to develop a novel prodrug and combination therapy. A key aspect of the research will be optimising the self-immolating cleavable linker system for a favourable rate of payload release.

The project is an active collaboration with the University of Otago. The successful candidate will develop skills in modern organic chemical synthesis, Solid Phase Peptide Synthesis (SPPS), reverse phase-HPLC and may also have the opportunity to conduct biological assays/enzyme assays.



A three-component prodrug to provide a novel VDEPT strategy.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI146
Project title:	**Macrocyclic Peptide Libraries for Drug Discovery with 'Undruggable' Targets**
Discipline:	Ngā Motu Whakahī School of Chemical Sciences
Supervisor(s)	Dr Alan Cameron
Contact details	Alan.cameron@auckland.ac.nz
Skills Needed	• A background in organic or medicinal chemistry undergraduate courses

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Many important drug-targets have long been considered 'undruggable'. Cyclic peptides (circular chains of amino acids) are poised to offer a new era of drug discovery, reaching 'undruggable' targets at the interface of protein-protein interactions (PPIs). However, these cyclic peptides require extensive modification to be suitable drugs for use in humans. Currently, only limited methods exist to directly identify 'drug-like' cyclic peptides from the massive libraries (often >10^9 individual molecules) required to find strong target binders. The key challenge is to identify the 'needle in a haystack' from these massive libraries that binds the target and may be a magic bullet for currently untreatable diseases.

This project seeks to develop a novel chemical platform to directly identify 'drug-like' target binders from cyclic peptide libraries which require only minimal further modification–leapfrogging several steps in the existing development pipeline (**Fig. 1**).

The project will entail chemical synthesis of cyclic peptide libraries, utilising specially engineered linker systems that allow for cleavage (linearisation) of the cyclic peptides, after they bind a target of interest, into simple linear peptides that can be indentified from large libraries by mass spectrometry fragmentation (MS-MS) approaches.

As a candidate in this project, your work will be focused on chemical synthesis, analysis and studying appropriate cleavage conditions to linearise peptide libraries hit compound identification.

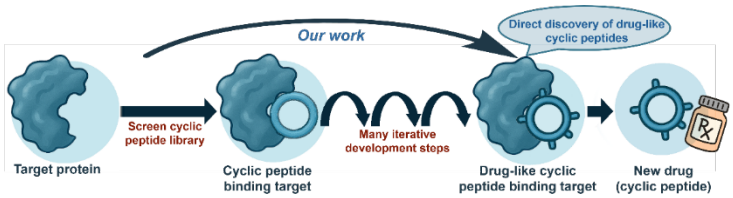


Fig. 1: *Discovering cyclic peptides drugs by screening libraries requires many iterative steps of modification to discover 'drug-like' cyclic peptides. With novel chemistry, we can fast-track this by directly discovering 'drug-like' Hit Compounds.*

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI147
Project title:	**SAR Study to Combat Antimicrobial Resistance**
Discipline:	Ngā Motu Whakahī School of Chemical Sciences
Supervisor(s)	Dr Alan Cameron
Contact details	Alan.cameron@auckland.ac.nz
Skills Needed	• A background in organic or medicinal chemistry undergraduate courses

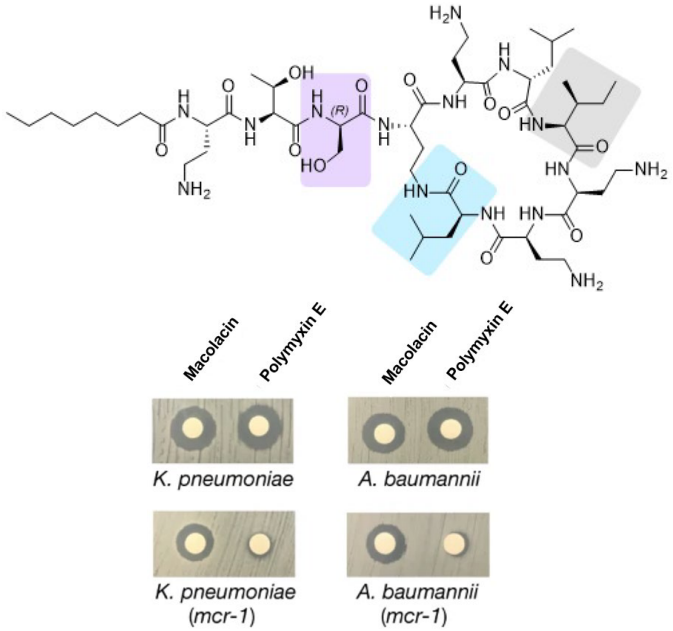
Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Antibiotic resistance is recognised by the WHO as one of the greatest threats to humanity and infectious diseases rank as the second most common cause of death worldwide.

Polymyxin antibiotics are the current last-line of defence, but are severely nephrotoxic. Most worryingly, since 2015, a mobile resistance gene (mcr-1) has been spreading globally and making our last hope in the clinic ineffective. In 2022, macolacin was discovered. Macolacin is a new polymyxin scaffold that retains potent activity towards mcr-1 mediated polymyxin resistant Gram-negative bacteria.

This project seeks to conduct a structure-activity-relationship (SAR) study of macolacin and prepare new analogues with diminished toxicity that could replace polymyxins as last-line of defence antibiotics in the clinic. Successful candidates will use organic synthesis techniques and modern methods of solid phase peptide synthesis. Candidates will also have the opportunity to undertake and learn biological assays if they desire.



(Upper) Chemical structure of Macolacin with modification sites highlighted; (lower) activity of macolacin towards polymyxin resistant isolates.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI148
Project title:	**Supporting Kaitiakitanga in Future Urban Industry**
Discipline:	Ngā Motu Whakahī Future Urban Industry Programme / Faculty of Science
Supervisor(s)	Professor Jacqueline Beggs (Ngāti Awa; UoA) Dr Meg Parsons (Ngāpuhi; UoA) Dr Sandi Ringham (provisional) (Ngāti Kuri; University of Waikato)
Contact details	j.beggs@auckland.ac.nz
Skills Needed	• Interest in Māori and Pacific perspectives, sustainability, ecology, planning, or environmental management • Strong communication and organisational skills • Ability to work independently and as part of a team • Interest in environmental stewardship and community wellbeing

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

How can concepts such as kaitiakitanga, mauri and community wellbeing help shape more sustainable and regenerative industrial landscapes?

This project will contribute to the MBIE-funded Future Urban Industry (FUI) research programme, which is exploring how Auckland's urban-industrial areas can become healthier, more resilient, and more nature positive. Working within the Wiri–Te Puhinui case study area in South Auckland, the student will explore how Māori perspectives, aspirations, and environmental values can inform future urban-industrial development.

The project may include reviewing planning and environmental documents, exploring cultural and environmental indicators, contributing to mapping and synthesis activities, and supporting the development of frameworks that integrate ecological, cultural and community wellbeing outcomes.

The exact focus will be refined in consultation with project partners and mana whenua engagement processes already underway. The project offers an opportunity to work at the interface of ecology, sustainability, planning, and Indigenous knowledge systems within a major interdisciplinary research programme involving researchers, mana whenua, local government, businesses, and community partners.

This project would suit students interested in environmental science, sustainability, Māori studies, geography, planning, conservation, or community development.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI149
Project title:	**Indigenous Perspectives on Time & Temporality for Simulations**
Discipline:	Ngā Motu Whakahī Computer Science
Supervisor(s)	PhD Candidate Maya Gibson (Ngāti Apa) Associate Professor Danielle Lottridge This internship is also supported by academic staff Dr Daniel Wilson, Dr Tahua O'Leary, and Associate Professor Manuhuia Barcham who will meet the candidate twice over the internship.
Contact details	d.lottridge@auckland.ac.nz
Skills Needed	• An interest in philosophy and developing applications and interfaces • An eye for design and visual appeal

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

Contemporary understandings of time include physics-based as well as process philosophical accounts, and Indigenous philosophies such as the 7th generation principle, an Iroquois philosophy that shifts perspective from short to long term consequences. Thinking 7 generations into the future changes our way of relating with time to promote more sustainable decisions, and is one such way to reorient how we design technology and consider our relationships with technologies.

Our research in philosophical underpinnings and evolutionary robotics simulations explores the ontology of change (movement through time). We have developed an Ordinary Differential Equation simulation that models human engagements with technology and their implications. We explore how concepts like boredom and technology addiction emerge from interaction metaphors based on gravity and magnetism. The simulation is currently positioned as a tool for thinking through concepts and self-reflection.

This summer internship will include compiling a reading list and having weekly discussions to learn about Māori and Indigenous philosophies of time. The intern will prototype how these might be expressed through simulation, symbols, metaphors, visual language, etc., as well as how they elucidate aspects of human relationships with technology.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI150
Project title:	**The Pasifika Inpatient Hospital Experience Study (PIHES)**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Dr Sarah Kapeli (Lapaha, Tongatapu) Jessee Fia'Ali'i (Afega/Fogāsavaii, Sāmoa) Doctoral Candidate
Contact details	s.kapeli@auckland.ac.nz
Skills Needed	• Excellent interpersonal communication skills • Strong literature review, comprehension and writing skills • An interest in Pasifika/Indigenous Psychologies and research methods • Knowledge and proficiency with SPSS or a willingness to learn • Will be able to commence on an agreed start date following exams and attend weekly fono with supervisors. There will be a three-week break during the Christmas and New Year period

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Pasifika communities have a longstanding history of experiencing negative health outcomes. These outcomes are increasingly visible in the utilisation of and barriers to various levels of the public healthcare system. Despite comprising less than 10% of the population, Pasifika peoples have the highest standardised rates of preventable hospitalisations. This has been the case for at least two-decades. To date, little is known about the experiences of Pasifika peoples during hospitalisation – particularly in terms of their psychological and wellbeing needs. PIHES is a series of mixed-methods studies seeking to contribute to this knowledge gap using vā (relationality) as a critical lens to promote culturally nuanced and positioned health knowledge.

Health Psychology is the application of psychological models and theories in physical health issues and healthcare contexts. Therefore, this studentship is suited to a candidate with a passion for health equity, and a strong interest in Pasifika/Pacific psychologies. Familiarity with psychology research methods, and critical reading and writing skills will place the candidate in good stead to make the most of this opportunity. PIHES is a clinically based research project and a summer student will be able to contribute to fieldwork, engage in and understand Pasifika health psychology data, and gain insight and experience in research design.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI151
Project title:	**Flexible approaches for maintaining re-identification risk in statistics about small populations**
Discipline:	Ngā Motu Whakahī Statistics
Supervisor(s)	Dr Lara Greaves Andrew Sporle
Contact details	lara.greaves@auckland.ac.nz a.sporle@auckland.ac.nz
Skills Needed	• An interest in social or health statistics • An interest in Māori and/or Pacific statistics • Knowledge of basic algorithm design principles • Understanding of statistical variance • R coding skills • Data wrangling experience

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Population health and social statistics are usually published after processes to minimise the re-identification risk for any individual from the published data. The standard approaches include suppression (non-publication) of small counts and random rounding of results. This approach was developed to work with statistics about large populations, where the practices are now routinely used internationally. For smaller populations, these rules can impact on the availability and precision of available statistics. Smaller populations are much more likely to have statistics that involve small counts, meaning suppression of statistics is more likely, making statistical information unavailable. Secondly the random rounding of results can have a serious impact on the precision of small counts as the additional random error is a much higher proportion of the final value

This project will create algorithms and resources for more flexible strategies for minimising re-identification risk that also include consideration of the potential loss of information and precision. Working with real data, this project involves developing strategies and processes for different types of population health and social statistics so that information loss is minimised and reidentification risk remains low.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI152
Project title:	**Quantum enhanced computing with light**
Discipline:	Ngā Motu Whakahī Department of Physics, Faculty of Science
Supervisor(s)	Prof. Stéphane Coen, Dr. Liam Quinn Kane Hill (Ngāpuhi, PhD candidate)
Contact details	s.coen@auckland.ac.nz
Skills Needed	Basic experience with coding (Python or MATLAB). Prior knowledge/interest in these areas would be a bonus: • Problem solving • Computation and Optimisation • Hardware programming

Project description *This is a* Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

In this project, the student will work with a new laser system that can be used for a variety of emerging quantum and analogue computing technologies. The system can be used as a quantum random number generator, producing inherently unbiased randomness for cryptography and security. Alternatively, the laser pulses can be coupled together to form an analogue computer for solving exponentially difficult combinatorial problems.

The student will gain experience working in an experimental optics lab including the use of lasers, photodetection tools and hardware programming. Some numerical work will also be taught, including modelling differential equations and statistical analysis of output data.

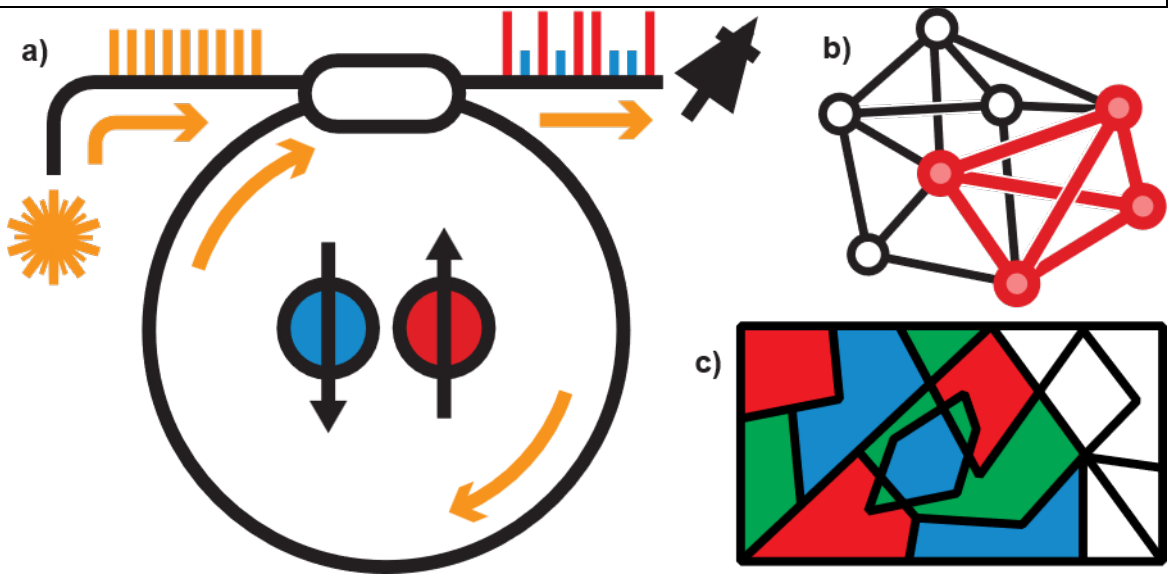


Figure: Illustration of optical platform and associated combinatorial problems. **a)** Laser pulses are injected into a fibre ring, yielding one of two possible polarization states. Pulses can be coupled together to efficiently solve tasks such as **b)** network optimization, and **c)** graph colouring.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI153
Project title:	**Identifying novel therapeutic targets from the world's deadliest pathogen**
Discipline:	Ngā Motu Whakahī School of Biological Sciences
Supervisor(s)	Jamie Taka Stephanie Stuteley
Contact details	jamie.taka@auckland.ac.nz
Skills Needed	Students with a background in protein science and an interest in bacterial metabolomics will be suitable for this project.

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

Antimicrobial resistance (AMR) is the ability of bacterial pathogens to evade treatment. AMR a growing global health treat, predicted to cause up to 10 million deaths per year by 2050, yet the development of new antibiotics to replace those that are becoming ineffective does not keep up.

Understanding a bacteria's metabolism is key in identifying new targets for the development of much needed new antibiotics. In this project you will produce key metabolic enzymes from *Mycobacterium tuberculosis*, the bacteria that causes tuberculosis, test their function and determine their molecular structures. This will contribute to a wider project aiming to find new treatments for tuberculosis.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI154
Project title:	**Māori perspectives in marine restoration projects**
Discipline:	Ngā Motu Whakahī Institute of Marine Science
Supervisor(s)	Andrew Jeffs, Professor, Marine Science and Biological Sciences Kayleb Himiona, Research Fellow, Marine Science
Contact details	a.jeffs@auckland.ac.nz
Skills Needed	• Report writing • Interdisciplinary thinking • Basic understanding of Māori concepts

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

The aim of this project is to research and compare selected marine restoration projects in Aotearoa New Zealand that incorporate te ao Māori perspectives, with a focus on initiatives such as shellfish bed restoration, shoreline rehabilitation, and coastal ecosystem recovery. The project will critically examine how mana whenua are involved in these projects and the extent to which Māori knowledge systems are integrated into planning, implementation, and monitoring processes.

This study will involve a comparative analysis of case studies drawn from academic literature, government reports, iwi-led restoration initiatives and discussions with academics working in the field. Key themes will include governance structures, co-management arrangements, cultural indicators of ecosystem health, and the role of mātauranga Māori in guiding restoration goals and outcomes.

The project will also explore tensions and opportunities in combining Western ecological approaches with Indigenous knowledge systems, particularly in relation to intertidal and nearshore environments.

The final output will be a synthesis report that identifies best practice approaches, highlights successful models of collaboration, and outlines gaps where Māori perspectives could be more meaningfully incorporated into restoration practice and policy.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI155
Project title:	**Exploring Pacific peoples' understandings of fertility and spirituality**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Sarah Kapeli (Lapaha, Tongatapu), Psychology Sarah McLean-Orsborn (Tapatapo, Moamoa, Papa Sataua, Sāmoa), Pacific Studies
Contact details	s.kapeli@auckland.ac.nz
Skills Needed	• Excellent written, verbal, and interpersonal communication skills • Highly organised and able to work independently • Ability to search and synthesise literature • Strong interest in Pacific health and wellbeing

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

Narratives positioning Pacific peoples as inherently 'highly fertile' have long obscured conversations about unexplained infertility, miscarriage, and chronic reproductive conditions such as PMOS and endometriosis. These issues are often discussed only in confidence, despite high rates of reproductive distress in Aotearoa NZ. For Pacific peoples, family sits at the centre of social life, and decision-making is grounded in collective belonging and genealogical ties. As Tui Atua Tupua Tamasese Ta'isi Efi (208) and Wendt (1996) remind us, the 'self' is relational, shaped through obligations to family, village, and nation. Within this worldview, the desire for children is often deeply connected to love, continuity, and collective identity. Heavily intersecting with spiritual beliefs where children are viewed as divine blessings. Consequently, infertility can prompt profound emotional, psychological, and spiritual distress, often complicated by religious stigmas or faith-versus-science tensions.

This project will explore Pacific peoples' understandings of fertility and spirituality and is suited to a scholar with a strong interest in Pacific health and wellbeing. The ideal scholar will be of Pacific and/or Māori descent who can take a culturally grounded approach to research. The project will have academic, intellectual, and practical benefits for the scholar, who will receive mentoring, opportunities to network, and contribute to research activities (including but not limited to reviewing literature, report writing, research design, and fieldwork) that will form the foundation for a larger research programme planned for 2027.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI156
Project title:	**Beyond Prediction: Data Science summer projects**
Discipline:	Ngā Motu Whakahī Statistics; Computer Science
Supervisor(s)	Assoc Prof Lara Greaves (Ngāpuhi), Prof Mark Gahegan (Pākehā), Eric Marshall (Ngāpuhi), Tori Diamond (Ngāpuhi), Assoc Prof Phil Wilcox (Ngāti Kahungunu, Rongomaiwahine, Ngāti Rakaipaaka; Otago University), Assoc Prof Andrew Sporle (Ngāti Apa, Rangitāne, Te Rarawa)
Contact details	Lara Greaves lara.greaves@auckland.ac.nz
Skills Needed	• Undergraduate studies in a data/quantitative analysis-heavy subject and/or studies/an interest in Māori data sovereignty from a policy or law perspective • We have projects for students with no coding skills through to advanced coding skills • An interest in applying data science to real world problems

Project description

We are offering up to five summer projects for Māori students, through *Beyond Prediction*, an MBIE-funded data science platform. Our aim is to increase the Māori data science workforce, but we have hosted students across many different disciplines. Students will be matched with a supervisor/topic based on their skills and interests. Past students have explored population data, epidemiology and health data, statistics and maths education, Māori data sovereignty, AI, data visualisation, and applying tikanga and mātaraunga to data science. Please get in touch with Lara to discuss topics/supervision.

Past projects have included:

- Finding, digitizing and displaying historical Māori cancer data, and other Māori health equity data for a Waitangi Tribunal report.
- Work to develop a data visualization tool for data and creating a teaching resource.
- Applying tikanga and mātauranga Māori to data science, including in the genomics space e.g., conceptualizing the use of whakapapa data in data science.
- Reviewing regulatory frameworks for Indigenous data sovereignty and AI
- i) creating trusted explanations from research literature using AI or (ii) building a 'live' research article—one that refreshes itself as new data and methods become available. (For students with a strong computer science or computer engineering skills)

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI157
Project title:	**Investigation of plastic cultural heritage items**
Discipline:	Ngā Motu Whakahī Department of Physics
Supervisor(s)	Cushla McGoverin Supported by Carlie Watt (PhD candidate, Ngati Maniapoto)
Contact details	c.mcgoverin@auckland.ac.nz
Skills Needed	• An interest in cultural heritage collections • Good organisational skills and attention to detail • Knowledge of spectroscopy or methods such as principal components analysis advantageous but not necessary

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage.*

Scientific analysis of cultural and historical items is needed to inform on provenance and conservation. These items are often fragile; hence non-destructive and information-rich analytical techniques are optimal. Light-based methods, for example spectroscopies, are a good option in many cases. We are working with the Auckland Museum and using Raman and near-infrared spectroscopies to study items of cultural importance that are made from plastics.

In this project the student will learn to collect infrared and Raman spectra from a variety of plastic-based samples and analyse this data to determine if degradation of the plastics has occurred. The aim of these studies is to understand degradation of cultural items of significance. This project would suit students in physics, chemistry, computer science or intending to do postgraduate study in museums and cultural heritage.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI158
Project title:	**Modelling the lives of the earliest stars**
Discipline:	Ngā Motu Whakahī Department of Physics
Supervisor(s)	Sean Richards Jan Eldridge
Contact details	sean.richards@auckland.ac.nz
Skills Needed	• An interest in computer modelling, and experience programming • A sound understanding of physics, though astrophysics is not required

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

Massive stars at low metallicity are proxies for the earliest stars that existed in the Universe. These stars, which consist almost entirely of hydrogen and helium, are yet to be conclusively detected observationally, though recent missions such as JWST can in principle detect them.

This project will focus on the evolutionary behaviour of these stars, with a view to creating a small population of metal-poor massive stars, using our custom version of the Cambridge STARS code. These stars – virtually untouched by elements heavier than helium – will have trace elements of heavier elements inserted, to determine how these stars will eventually evolve.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI159
Project title:	**Fostering whanaungatanga and tauira led kaupapa in the Tuākana programme at Waipapa Taumata Rau**
Discipline:	Ngā Motu Whakahī Department of Physics, Department of Mathematics, Department of Statistics
Supervisor(s)	Dr Ben Pollard, Dr Kannan Ridings (Rongowhakaata), Susan Wingfield, Dr Malia Puloka
Contact details	ben.pollard@auckland.ac.nz, k.ridings@auckland.ac.nz, s.wingfield@auckland.ac.nz, m.puloka@auckland.ac.nz
Skills Needed	• Experience coding (python, R or any language will do). • Experience analysing qualitative data is a bonus • A keen interest in fostering development and capability building in Māori and Pacific spaces.

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

The Tuākana Maths, Stats, and Physics programmes all share a common space, where Māori and Pacific tauira gather for tutoring, mentoring, relaxing, and kai. Recently, a survey for Māori and Pacific Tauira participants (and non-participants) in the Tuākana programme in Physics, Maths, and Stats has been developed. The survey, consists mostly of open-ended items, that aim to understand previous research that suggested a connection between retention in physics and participation in Tuākana. This project aims to do several things related to developing a holistic understanding of this shared Tuākana space:

- Administering surveys to recent participants (and non-participants) in the Tuākana programmes hosted by Maths, Stats, and Physics,
- Running an analysis on said survey results,
- Constructing an alumni database of past participants of the Tuākana programme in Maths, Stats, and Physics
- Interviewing alumni on their experiences being part of the Tuākana programme.

The idea is to invite descriptions of whakawhanaungatanga as it relates to persisting through a STEM degree, and how or why participation in Tuākana helped in realising this.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI160
Project title:	**Measuring Good – Evaluating personal outcomes of a community-based hearing service**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Suzanne Purdy Peter Stubbing
Contact details	sc.purdy@auckland.ac.nz
Skills Needed	• An interest in Māori community health • Able to drive to Kaitaia and conduct interviews with health staff and kaumātua • Transcription and qualitative data analysis of interview data • Questionnaire data analysis

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

Access and affordability of hearing services in rural Northland is a challenge – this has prompted Te Hiku Hauora, in a Māori Health organisation in Kaitaia, to partner with Tāmaki Makaurau Hearing Trust to explore a new programme for supporting hearing health for kaumātua and other kiritaki. The programme provides free hearing assessments and affordable (very low cost but high quality) hearing aids to kiritaki. This summer research project will assess the impact of this Pathfinder programme for individual kiritaki and acceptability of the programme for local health providers. The project involves analysis of data that measures changes in hearing (including social) outcomes for kiritaki who receive hearing aids. A standardised questionnaire has been administered pre and post hearing aid fitting and informal interviews have been conducted. The student researcher will add to this data by interviewing kiritaki and health providers to explore the programme in more depth across different interest holders.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI161
Project title:	**Indigenous Data Sovereignty resource hub creation**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Sarah Kapeli Larissa Renfrew
Contact details	s.kapeli@auckland.ac.nz
Skills Needed	• Critical reading and writing skills • An eye for design and visual appeal • An interest in indigenous data sovereignty • experience in academic writing and gathering and organising documents

Project description

Indigenous Data Sovereignty (IDSov) refers to the rights Indigenous people have to data that relates to them, and how it is designed, collected, accessed, interpreted, and used. Māori and Pacific Data Sovereignty recognises that Māori and Pacific data should be subject to Indigenous governance. Essential to IDSov is Māori and Pacific peoples being not only data producers and consumers but also data designers and collectors.

The IDSov Resource Hub will be an online platform to support researchers to locate relevant resources on how they can manage Indigenous research data. The IDSov Hub will be an evidence base that can inform practices, which staff and students can consult in alignment with Taumata Teitei and existing Research Policy. This is vital because our researchers increasingly have to consider responsiveness to IDSov throughout the research data lifecycle. . The IDSov Resource Hub will be created with information on IDSov, CARE Principles. Data Maturity, and practical examples of best practice. Overall, these activities will significantly support equity and research practice as aligning with IDSov values will support the school and faculty to foster inclusive data cultures that prioritise the rights of Indigenous communities, leading to more equitable and responsible data practices.

Faculty of Science
Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI162
Project title:	**Māori Data Sovereignty and resource pathways**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Suzanne Purdy Larissa Renfrew
Contact details	s.purdy@auckland.ac.nz
Skills Needed	• Critical reading and writing skills • An eye for design and visual appeal • An interest in indigenous data sovereignty • experience in academic writing and gathering and organising documents

Project description

Indigenous Data Sovereignty (IDSov) refers to the rights Indigenous people have to data that relates to them, and how it is designed, collected, accessed, interpreted, and used. Māori and Pacific Data Sovereignty recognises that Māori and Pacific data should be subject to Indigenous governance. Essential to IDSov is Māori and Pacific peoples being not only data producers and consumers but also data designers and collectors.

Te Mana Raraunga (The Māori Data Sovereignty Network) Resource Pathways need to be created to support researchers to locate relevant resources on how they can uphold IDSov (Indigenous data sovereignty). The IDSov pathways will be an evidence base that can inform communities of researchers, practitioners, and many more. This is vital because there has increasingly been a need to consider responsiveness to IDSov throughout the research data lifecycle. The IDSov Resource pathway will be created with information on IDSov, CARE Principles, Data Maturity, and practical examples of best practice. Overall, these activities will significantly support equity and research practice as aligning with IDSov values will support many to foster inclusive data cultures that prioritise the rights of Indigenous communities, leading to more equitable and responsible data practices.

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2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI163
Project title:	**Computation of the extremal function**
Discipline:	Ngā Motu Whakahī Department of Mathematics
Supervisor(s)	Sione Ma'u
Contact details	s.mau@auckland.ac.nz
Skills Needed	• Background in linear algebra and calculus at the level of Maths 250, or 221 and 231. • Familiarity with Matlab would be helpful

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

The extremal function associated to a compact set is an important tool in polynomial approximation. It tells you how well one can approximate an analytic function on the set by polynomials, based on the shape of the set and the location of the singularities of the function.

About 5 years ago a method was developed to compute the extremal function of any convex polytope. In this summer research project, you will learn the essential theory behind this method and develop a Matlab tool that uses it to compute the extremal function concretely.

Project code:	SCI164
Project title:	**Medical physicist internship with Auckland DHB**
Discipline:	Ngā Motu Whakahī Physics
Supervisor(s)	Christine Thompson (ADHB), Claude Aguergaray (UoA), Jami Shepherd (UoA)
Contact details	christinet@adhb.govt.nz, jami.shepherd@auckland.ac.nz, c.aguergaray@auckland.ac.nz
Skills Needed	• An interest in medical physics • Data analysis and coding skills

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

This Clinical Placement Scholarship was established in 2026 and is a three-way collaboration between: Ngā Motu Whakahī, the Māori and Pasifika research mentoring programme within the Faculty of Science at Waipapa Taumata Rau, University of Auckland, Te Pūriri o Te Ora Regional Cancer and Blood Service, Te Toka Tumai, Auckland, and The New Zealand Branch of the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).

The regulations are similar to the University of Auckland Summer Research Scholarship

Faculty of Science
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2026/2027 Projects (Ngā Motu Whakahī)

regulations, with a few key differences to prioritise Māori and Pasifika ethics and student engagement and is intended to provide in depth clinical experience of the role of a Radiation oncology Medical Physicist rather than a research project.

The main purpose of the Scholarship is to give current Māori and Pasifika domestic students an opportunity to develop an understanding of the work of clinical Radiation Oncology Medical Physicists, to build whakawhanaungatanga with the Medical Physics and Radiation Oncology community, and to thereby encourage them to pursue a registrar position to train as a Medical Physicist.

Project code:	SCI165
Project title:	**Exploring the Literature related to Family Therapy for Pasifika Peoples**
Discipline:	Ngā Motu Whakahī Psychology
Supervisor(s)	Veronica Tone-Graham Sarah Kapeli
Contact details	veronica.tone-graham@auckland.ac.nz sarah.kapeli@auckland.ac.nz
Skills Needed	• A culturally grounded approach to research • An interest in Pasifika Mental Health • Strong communication skills • Ability to conduct searches & identify gaps in existing literature (this will be supported) • Ability to synthesise literature

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

This Summer Research project is part of a larger project which seeks to explore the utilisation and efficacy of Family Therapy for Pacific peoples in Aotearoa New Zealand. For the summer project, the scholar will contribute primarily to the foundational literature review, but may be asked to contribute to the wider project. There is an expectation that they will be able to conduct searches, analyse abstracts, synthesise results and present these back in writing. The scholar will receive regular mentoring and guidance, and they should be self-motivated and independent, with good communication skills.

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Summer Research Scholarships

2026/2027 Projects (Ngā Motu Whakahī)

Project code:	SCI166
Project title:	**Squishing cells and vesicles**
Discipline:	Ngā Motu Whakahī Chemistry / Physics
Supervisor(s)	Geoff Willmott; Kannan Ridings (Rongowhakaata)
Contact details	g.willmott@auckland.ac.nz
Skills Needed	• *Familiarity conducting experiments (course work acceptable)* • *Some data analysis and coding skills*.

Project description

This is a Ngā Motu Whakahī *scholarship specifically targeted toward students who whakapapa Māori or are of Pacific heritage*.

A funded project is available to study soft microparticles (e.g. cells) being squeezed within a constriction (e.g. a pipette tip). This work is part of a project to develop new methods for easily analysing the mechanical properties of soft particles.

The project may be experimental or computational, depending on the student's interests and skills.

For example, an experimental project could work on collecting and analysing data for a particular set of soft particles. A theory / computational project could work on models that are used to find mechanical properties based on experimental data.

Lab website: https://fluidics.physics.auckland.ac.nz/