

NZ NEW ZEALAND **ISF** INTERNATIONAL **SCIENCE FESTIVAL** 30 JUNE – 9 JULY 2023 | DUNEDIN



SCIFEST.ORG.NZ

dunedin

 **DUNEDIN** | kaunihera
CITY COUNCIL | a-rohe o
ōtepoti

UNIVERSITY
of
OTAGO

 **OTAGO**
Community Trust

WELCOME



Tēnā koutou,

Welcome to Ōtepoti Dunedin, proud host of the New Zealand International Science Festival.

Dunedin is a city of education, a city of science and a city of innovation. This festival brings those elements together in a week of hands-on activities, talks and activities for all ages and interests.

This year is the festival's 25th anniversary. With over 90 events at 50 venues across the city, and all 11 National Science Challenges represented along the way, it's shaping up as the best festival yet!

Science is important because it influences nearly all aspects of our everyday lives – food, energy, climate, medicine, transport and more.

Science also helps to improve human life at every level – from individual health and comfort to global issues.

So be sure to confer with friends and whānau, make a plan, participate in some of the many events on offer, and learn more about the world around you!

I hope to see you there.

Kā mihi nui,

Jules Radich
Mayor of Dunedin



We're 25 years old!

Some would say that's when you really become an adult, looking at your future with a certain amount of experience behind you.

We hope you enjoy browsing the programme, both here and online. We hope you will find topics that intrigue you, no matter your age or interests. There are workshops and talks, tours and shows and so much more. We are particularly proud to present a Matariki-themed science show *Matariki Ki Tua O Kā Whetū: Matariki Of Endless Possibilities* which weaves the story of Matariki and its mātauranga into an exciting tale.

We have some wonderful international guests including ecological economist Prof Tim Jackson (UK) and are delighted to offer tours of several of Dunedin's incredible local businesses where you can explore some of the fascinating technology and creativity that goes on right here in our City of Science. We are also jazzed about our Speaker Series as it will be an opportunity to hear about the work being done in relation to all 11 of our National Science Challenges.

The Festival is supported by an incredible group of volunteers who make sure our attendees are well looked after and the events run smoothly, and we have so many partners, funders and sponsors who help us bring these amazing speakers and experiences to you. In particular, we'd like to thank our major funders The Dunedin City Council, the Otago Community Trust, and the University of Otago. We are endlessly grateful to all the people and organisations that believe in our kaupapa and are as excited as we are about science.

In 1998, the first Festival Director wrote: "The great thing about running the first International Science Festival is that it infers there will be a second." Now, we like to think that the idea of a 25th festival suggests that there will be a 50th. The big question is – What will science have in store for us then?

Bridget Irving, President

Jerome Cousins, Festival Director

PARTNERS

MAJOR PARTNERS



SUPPORTING FUNDERS



EVENT PARTNERS



DIRECTOR'S TOP 10



MATARIKI KI TUA O KĀ WHETŪ | PG 4



FESTIVAL HUB | PG 6-9



SCIENCE SHOWS | PG 16



NATIONAL SCIENCE CHALLENGES TALKS | PG 28-29



LIGHTS, CAMERA, SCIENCE! | PG 5



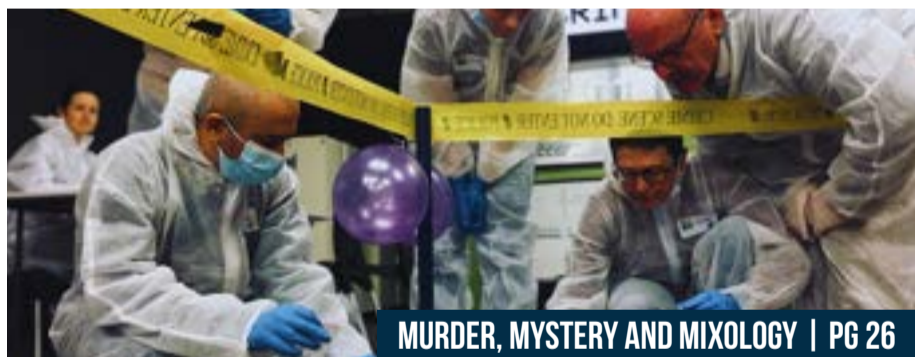
SCIENCE EXPO | PG 13



TIM JACKSON | PG 25



SCI FIGHT | PG 12



MURDER, MYSTERY AND MIXOLOGY | PG 26



WOMEN IN SCIENCE BRUNCH | PG 26

HOW TO USE THIS GUIDE

KEY

AGE RECOMMENDATION

- ALL AGES
- KIDS (4-8)
- TWEENS (9-12)
- TEENS (13-17)
- ADULTS (18+)

PRICE LISTING (WHERE APPLICABLE)

FULL PRICE/CONCESSION

BOOKING REQUIRED





MATARIKI KI TUA O KĀ WHETŪ: MATARIKI OF ENDLESS POSSIBILITIES

SAT 1 JULY, SUN 2 JULY • UNIVERSITY OF OTAGO TEACHERS COLLEGE AUDITORIUM • 2PM • 60MIN • \$15 | \$10

In the hours before the Matariki star cluster rises, a scientist and his family gather in their garden to celebrate the Māori New Year.

While they wait for the sun to rise, they prepare a hāngī, share stories of their tīpuna, and explore the science of the world around them. How will the stars bring this whānau closer together?

Matariki Ki Tua o Kā Whetū is a new science show written by Isaac Martyn (2022 Peter Harcourt New Playwright of the Year) and directed by Sahara Pohatu-Trow, with the support of the University of Otago Physics outreach team.

Produced with support from the Creative Communities Scheme from Creative New Zealand.

25 YEARS OF SCIENCE



FRI 30 JUNE – SUN 9 JULY • WEEKDAYS, 9AM – 6PM
WEEKENDS, 9AM – 5PM • MERIDIAN MALL • FREE • DROP IN

This year, the **New Zealand International Science Festival** turns 25!



To celebrate, we're looking back at some of the most amazing scientific advancements and research projects in Aotearoa New Zealand over the last past 25 years.

The selection of research highlighted in this exhibition was curated by the Prime Minister's Chief Science Advisor Dame Juliet Gerrard, and features everything from important advances in agriculture to cutting-edge technology, plus a glimpse of what might be on the cards for the next 25 years and beyond!

LIGHTS, CAMERA, SCIENCE! SCI COMM STUDENT FILM PREMIERE



FRI 30 JUNE • REGENT THEATRE • 7PM • 150MIN • \$20 | \$15



Lights. . . Camera. . . SCIENCE! Get ready for a night to delight at the Regent!

Have an unforgettable evening on the red carpet in celebration of the phenomenal science and natural history films produced by Master's students of the University of Otago's Department of Science Communication, the world's leading postgraduate programme in science storytelling. The line-up includes five fantastic films with introductions by the filmmakers.

FESTIVAL HUB

Check out the Festival Hub at 26 Princes St! Open 10am – 3pm from Mon 3 July through to Sun 9 July various for you to drop in, chat to our Festival staff, and participate in the events and activities happening throughout the week.



EXHIBITION FOR OUR OCEAN WORKSHOP SERIES ●

MON 3 TO SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

See the transformation of marine climate data into art, from the *Our Ocean* workshop series run by the NZ Marine Studies Centre. These visual stories bring marine scientific data to life, enhancing the visibility of our changing ocean and the threat the changes pose to local marine life.



AOTEAROA NEW ZEALAND GEOLOGICAL MAP CARPET ●

MON 3 TO SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

Admire GNS Science's one-of-a-kind New Zealand geological map carpet in the Festival Hub. Trace the unique colours of rock formations from Cape Reinga to Bluff. Walk along the Alpine Fault. See New Zealand's mountains and plains through a geologist's eyes. This unique carpet display is a must for map lovers – you'll never see anything like it.

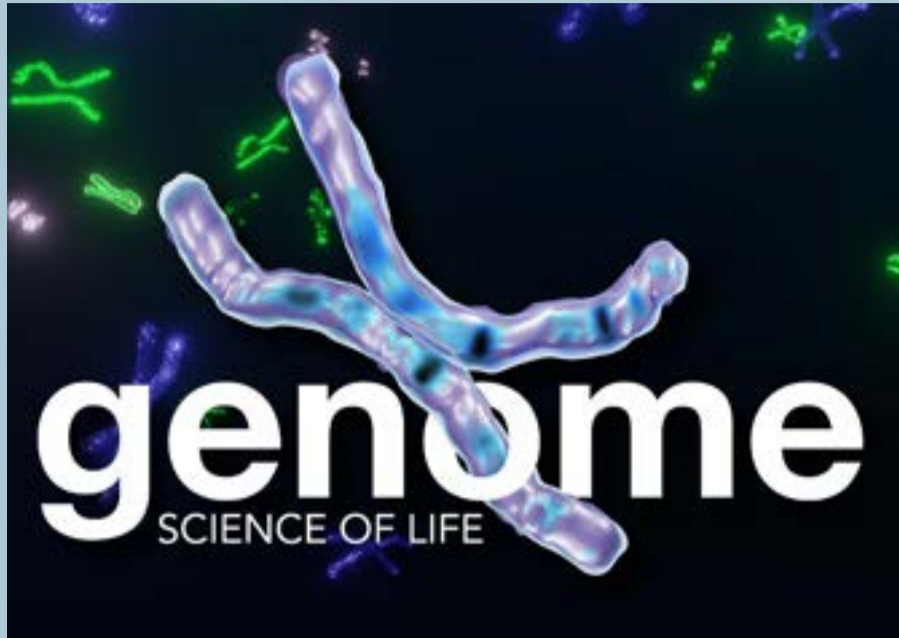


IMAGINATION PLAYGROUND ●

MON 3 TO SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

With the *Imagination Playground* engineering blocks, kids build a new world every day. They make objects like animals, rocket ships, and robots. They make imaginary places like houses, factories, and cities. They make new dramatic scenarios, settings, and games to play. Most importantly, they make the rules.

Because *Imagination Playground* is child-directed and open-ended, it encourages self-expression through deep, joyful play. Come and enjoy this creative engineering adventure.



GENOME — SCIENCE OF LIFE ● ● ●

MON 3 JULY TO SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

Every living thing has a genome from the tiniest virus to the largest animal on earth. We humans all have a unique genome – a set of instructions that make us who we are.

But what exactly is a genome and why has the field of genomics become increasingly important within our everyday lives?

Told in picture panels, this exhibition seeks to answer some of these questions in four intriguing stories: Genome 101, A Brief History, Genomics in Aotearoa, and Covid-19, 2020.



VIRTUAL DRIVING PRACTICE! ● ●

MON 3 TO SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

CoDriVR is a locally developed virtual reality programme to help with gaining a license and important road safety skills. Experience the latest developments from the team!



MAGIC IN THE AIR! 📖 ●

MON 3 TO SUN 9 JULY • 9.45AM • 40MIN • FREE

The University Book Shop is excited to be running their magical Story Time sessions. Hear their wonderful Story Teller share tales of dastardly deeds and sumptuous stories, and finish the session by indulging your creativity in a craft activity!



HOW DO YOU MEASURE UP? ●

MON 3 JULY • 10AM – 1PM • FREE • DROP IN

Measure your own physiological signals with interactive devices from ADInstruments and MR EMG and compare your signals to professional athletes!

Test your own physiological signals in real time (including grip force and muscle activity) and compete against each other with these measurements. Check out how you measure up compared to skilled athletes



FEED THE BIRDS ●

MON 3 JULY • 10AM – 3PM • FREE • DROP IN

Town Belt Kaitiaki is excited to be holding a wild bird-themed event with the opportunity to create bird feeders as well as lots of interesting information about plants that birds are naturally attracted to and that are beneficial. There are also plenty of other fun activities and the opportunity to find out more about what the Student Leadership Team has been working on.



HEART HUB ●●

TUE 4 JULY • 10AM – 3PM • FREE • DROP IN

Heart researchers from far and wide across Aotearoa have joined forces and are taking over the Festival Hub! The HEART HUB crew has an epic array of activities to drop in and enjoy, including a microscope station, stethoscopes, blood pressure cuffs, plastinated heart models, and a quiet activities zone. There will be interactives for healthy volunteers and space for young people to play and explore the workings of the heart.



MAP CHAT ●

WED 5, FRI 7, SUN 9 JULY • 1PM • 15MIN • FREE • DROP IN

The geological map of New Zealand explained. Geologists from GNS Science will relate short stories about the special geological map carpet on display in the Science Festival hub. What do the colours mean, who created the map, why it was made? There will be time for questions and comments afterwards.



MICRO-INVESTIGATORS ●

TUE 4 JULY • 10AM – 3PM • FREE • DROP IN

Visit the Micro-Investigators programme stall for a hands-on demonstration of their straightforward, inexpensive, and accessible methodology for sampling rivers and isolating microplastics in the lab. The goal is to present a simple and standardised approach that can be easily applied by primary school, high school and tertiary students, empowering communities through environmental education, Māori Indigenous values and wisdom, and raising awareness of waterways' microplastics pollution.



KIWI KAI ●●

WED 5, THU 6, FRI 7 JULY • 10AM – 3PM • FREE • DROP IN

Kiwi, your guide, invites you on a virtual farm adventure in Aotearoa New Zealand.

To succeed, you have to balance manaakihia te taiao (care for nature), whakatipua he kai hauora (grow healthy food), and manaaki tāngata (care for community) without overspending. Are you game?



EVERYDAY CONSERVATION SCIENCE ●

WED 5, FRI 7 JULY • 10AM – 3PM • FREE • DROP IN

The Department of Conservation and Toyota New Zealand have teamed up to create Toyota Kiwi Guardians! This national programme is a family-friendly initiative involving at home actions and outdoor adventures, which supports tamariki to engage their senses and get out into nature.

See them at the Festival Hub to learn about everyday conservation science all around you, and earn a Toyota Kiwi Guardians medal!



PLANT ME INSTEAD! ●

THU 6, FRI 7 JULY • 10AM – 3PM • FREE • DROP IN

Many of the weedy species invading and damaging Otago's natural areas are ornamental plants that have 'jumped the fence' from gardens and gone wild. Luckily, everyone can help in the fight against invasive weeds by learning to recognise, control and replace them with natives.

Visit the Otago Regional Council and Dunedin City Council for some useful advice and ideas on what you can do in your own backyard to help protect Otago's environment. There may be an awesome alternative plant for you to take home too!



ASK DR ROCK ●

WED 5, FRI 7, SUN 9 JULY • 1.15PM • 45MIN • FREE • DROP IN

Bring your favourite rocks, minerals, fossils and pebbles for the Geoscience Society of New Zealand's Dr Rock to identify. Challenge Dr Rock with something puzzling. What's this rock? Where's it from? How did it form? Why is it this colour? Could it be gold? Is it a meteorite?

Come and find out something about the story of the rocks around Dunedin, New Zealand, and Zealandia.



SCIENCE FOR OUR LAND AND FUTURE ●

SAT 8, SUN 9 JULY • 10AM – 3PM • FREE • DROP IN

Manaaki Whenua – Landcare Research will have a range of displays and activities to highlight the research undertaken by our scientists.

Have a go on the virtual reality experience, *Karanga o Tāne Mahuta*, which will take you on a 2,000-year journey through Aotearoa's ancient flora, fauna and taonga species. Then have a go at making your own tracking card and guess who has left footprints behind so you can make trapping decisions to protect our biodiversity. Now you've seen everything on the land, why not try flying a mini drone over our rural landscape to map environmental changes...

WHAT'S ON AT TŪHURA OTAGO MUSEUM



MAGIC HERITAGE BUS TOURS

THU 3, WED 5, FRI 7 JULY • CHECK WEBSITE FOR DETAILS

Embark on an adventure on a Dunedin-famous Magic Heritage bus! Join Science Communicators from Tūhura Otago Museum on a field trip and discover creatures, history, and more while you learn about the wonder of science along the way.

More info at otagomuseum.nz



OUT OF THIS WORLD MAKERSPACE

SAT 1 TO WED 12 JULY • ATRIUM LEVEL 1 • FREE • DROP IN

Tūhura Otago Museum's Makerspace is famous for its amazing crafts, and this time we're celebrating space with the Out-of-This World Makerspace! These self-guided, family-friendly activities are a great way to spend an hour or more and are suitable for all ages.



GIN & THE COLLECTION

WED 5 JULY • 5.30PM • MEET IN MUSEUM FOYER • \$45 • R18

Want a night out that is a little different from the usual restaurant or bar? Come along, taste award-winning boutique gins and get a rare behind-the-scenes glimpse of Tūhura Otago Museum's rarely seen basement collection. In celebration of the NZ International Science Festival 2023, this evening will feature collections that visiting researchers have travelled across the world to see.



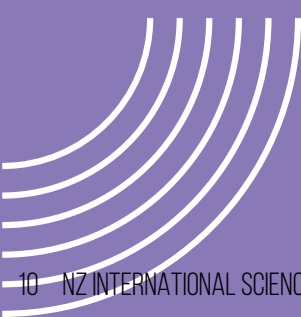
TROUBLE IN PARADISE

SAT 8 JULY TO SUN 8 OCT • 10AM – 5PM • 1877 GALLERY • FREE • DROP IN

In the lead-up to the COP26 climate change summit, the UK Government invited people from across the Pacific to document the everyday impacts of climate change in their region. These photographs are the winning entries of the UK's Pacific Climate Photography Competition, with submissions under the categories of Marine, Land, People, Youth (under 21) and Junior (under 13).

With support from the British High Commission.

Image credit: Maxim Va'a, Samoa





GALLERY TRAILS ●

EVERY DAY • COLLECT FROM INFO DESK • FREE • DROP IN

Tūhura Otago Museum gallery trails are a perfect day out during long school holidays. Take your favourite small person on a hunt through the Museum and follow the clues to collect your reward!

Follow the Tūhura Trivia Hunt trail to learn more about the interactives in our Science Centre, or the Tropical Forest Trivia hunt to learn more about the animals and plants that live there.



PLANETARIUM SHOWS ●

EVERY DAY • PERPETUAL GUARDIAN PLANETARIUM • FROM \$9

Looking for an out-of-this-world experience? Look no further than the Tūhura Otago Museum Planetarium! Our Night Sky Live and Spacetronauts shows are the perfect way to explore the wonders of space and astronomy, with something for everyone. Check out otagomuseum.nz for the show times.



TŪHURA SCIENCE SHOW ●

FRI 30 JUNE TO SUN 9 JULY • 2PM • FREE

Join us as we explore the secrets of science that make our world go round. Our amazing science show is designed to inspire, educate, and entertain kids of all ages, so get ready for an incredible adventure of discovery.

We've got a fantastic lineup of experiments, demonstrations, and interactive activities that will have your kids buzzing with excitement. Our science show is packed with surprises at every turn!



VISIT TŪHURA SCIENCE CENTRE ●

EVERY DAY • TŪHURA SCIENCE CENTRE • FROM \$13

First Flight Butterfly Release

Every day at 11am we take the brand-new butterflies from the hatching space and release them into the forest where you can watch them flutter together.

Terrapin Tucker Time

Come and join us while we give our terrapins their dinner, and learn all about their habits behaviour, and diets.

Tarantula Tales

Perfect for spider fans and arachnophobes alike, we're sure that you'll all fall in love with these fascinating spiders. Come and join us in the Tropical Forest – we promise they won't bite!

TŪHURA

Otago Museum

419 Great King St, Dunedin | Ph 03 474 7474
More events, tickets and info at otagomuseum.nz



WINE & SOUND WITH DR JO BURZYNSKA 🍷 ●

FRI 7, SAT 8 JULY • 6.30PM, 8PM • 90MIN
TŪHURA OTAGO MUSEUM – BEAUTIFUL SCIENCE GALLERY • \$45 • R18

Experience wine like you never have before - with your ears! Let the combination of wine & sound lead you to unexpected places in this unique wine-tasting experience. Dr Jo Burzynska is New Zealand-based wine writer, sound artist/composer and researcher. Her work in these areas has increasingly converged in projects that combine sound and flavour. This includes a recent PhD investigating the influence of sound on the perception of wine, and the production of multisensory art and immersive experiences, such the establishment of the world's first wine and sound bar.



MICRO-FOLIE DIGITAL MUSEUM ●

FRI 30 JUNE TO SUN 9 JULY • 10AM – 5PM
TŪHURA OTAGO MUSEUM – HUTTON THEATRE • FREE

The Micro-folie Digital Museum is a collaboration between the French Ministry of Culture and La Villette and is a collection of thousands of pieces from famous museums around Europe and the world.

Here for the first time in New Zealand, experience incredible artwork and artefacts from these collections without having to travel to each of the museums that house them! The innovative software interfaces with tablets to allow an individual experience in a shared space. This event has been made possible with support from the French Embassy. Check festival website for collection information.



ON THE ORIGIN OF FAECES 🍷 ●●

TUE 4, WED 5, THU 6, FRI 7 JULY • 6.30PM • 60MIN
TŪHURA OTAGO MUSEUM – BARCLAY THEATRE • \$30 | \$25 • M15+

On the Origin of Faeces is a scientific and comedic investigation into the excellent world of excrement and gut bacteria. How do astronauts poo in space? Did ancient cultures worship poo? What lurks in a gut microbiome? The answer lies within ourselves.

This is a s%^t show. Join science comedian Alanta Colley for a festival of effluvia, exploring how gut bacteria makes us who we are, and our gut feelings about poo. So grab a stool and join us for a diar-really good time.



SCI FIGHT SCIENCE COMEDY DEBATE: WE SHOULD FEAR AI 🍷 ●●

SAT 1 JULY • 7.30PM • 90MIN
TŪHURA OTAGO MUSEUM – HUTTON THEATRE • \$30 | \$25 • M15+

Sci Fight Science Comedy Debate brings together comedians and scientists to debate serious issues in a ridiculous way. Proceedings are loosely held together by your definitely qualified host, Alanta Colley [citation needed]. *Sci Fight* has been described as a nerdy, silly, and only occasionally litigious romp into what it even means to be alive.

Science Expo

University of Otago Business School, corner of Clyde Street and Union Street East
Saturday 1 July, 10am–4pm | Sunday 2 July, 10am–2pm | **Free entry**

Anatomy

Discover how we lived in the past, how this influences who we are today, and where looking to the future might shape who we become. Visit each of our moments in time and complete your time-traveller's anatomy passport. Dig for bones, paint your insides on a t-shirt, learn about advanced medical imaging and more!

Archaeology

Archaeology is the study of the human past, using material culture remains. Discover how we use artefacts and sites to learn about the past, and gather lessons for our future. We'll ask the questions: What does it mean to be human? How do we affect the world and the environment around us? How has technology changed over time? What new sciences are we using to learn about our human ancestors?

Botany

Plant biology is crucial to the health of the planet. Through photosynthesis, plants have changed the Earth's atmosphere, transforming the planet and enabling life as we know it to evolve. Plants now have numerous roles in mitigating the effects of climate change and understanding the biology of plants is crucial in addressing many of the challenges involved with climate change.

Brain Health Research Centre

Join us to explore the greatest part of the body – the brain. We'll be running some demos of Positively Wired! Testing your brainwaves and emotions through a headset, alongside build-a-neuron and some cool illusions. A giant inflatable brain will also be on hand to walk through. Join us for a special movie screening followed by a Q&A with brainiacs (popcorn included).

Coastal People: Southern Skies

The vision of Coastal People: Southern Skies (CPSS) is flourishing wellness (mauri ora) of coastal communities. As a Centre for Research Excellence, our mission is to connect, understand and restore coastal ecosystems of Aotearoa New Zealand and the Pacific through transformative research, local action and unlocking potential through new pathways to learning. Visit us at the expo to think about what mauri ora looks like for us as individuals, families, communities and the coastal ecosystem in which we live.

Computer Science

Get a glimpse into the future, explore the latest advances in technology and see how we're recreating the past.

- Meet our robot dog and find out how we're teaching it to find its way around.
- See how we're creating playable replicas of Moriōri albatross bone flutes, made more than 100 years ago on Rēkohu / Chatham Island.
- Experience 3D virtual reality environments captured from regular mobile phone cameras.
- Learn how AI is used to generate pictures.
- See how the technology we're developing will give crowds at live sports events enhanced experiences with augmented reality.

Dentistry

We'll bring a range of family-friendly hands-on activities that explore dentistry as an art and a science, incentivizing the public to reflect on the importance of looking after their oral health.

Food Science

Join us as we present a 'crop to cup ... and beyond' concept. Sample our oat milk ice cream, served in a sweet upcycled cracker cup. 'Step along the supply chain' to learn about the different ingredients and processes involved. We'll emphasise the importance of sustainability and circularity throughout the entire supply chain, highlighting the role of agricultural and food scientists in ensuring products are of a high quality, safe and meeting expectations of the end consumer. We will also bring along our smoothie bike so the kids can make a treat!

Genetics and Biochemistry

A combination of the Genetics teaching programme and the Department of Biochemistry, showcasing how lessons and methods used in the past are used today, and to educate our future.

Geography

The world around us is always changing, and this is something that Geographers study a lot. How have landscapes changed in the past and how will they change in the future? Will future landscapes be able to provide enough space for our plants and animals, and enough food for us people?

Geology

Come see our wall of luminescent mineral rocks from the past and experience the magic of their vibrant colours. Plus, discover the secret world hidden in rocks with amazing UV light technology.

HeartOtago Research Theme

HeartOtago invites you to compete against your family and friends. See who can get the highest heart rate and generate the most power in a 20-second cycle sprint. For those not interested in working up a sweat, we will be running our cold stress challenge – see if you can dip your hands in an ice bucket for 1 minute! While doing these tests, we will teach you about measuring heart rate and blood pressure, and how you can keep your heart healthy. We will also have microscopes set up with rat heart anatomy sections.

Human Nutrition

Food provides fuel and nutrients for our bodies. In New Zealand, the foods that we eat and our portion sizes have changed over time. How do your portions compare to your parents? Join us at the expo to find out more!

Information Science

- Come see us at the Department of Information Science booth for:
- Virtual Māori storytelling: Immerse yourself in the world of our Māori partners.
 - Climate change and sea level rise: See the potential effects of sea level rise on the assets of the Ngāi Tahu iwi.
 - Pervasive augmented reality: Experience a future where AR goggles are as normal as sunglasses.

Marine Science

The ocean's impact on our world is huge – and understanding our ocean planet is essential for meeting the challenges of our collective future. Learn about conservation, restoration and climate change from a marine science perspective, meet your coastal neighbours with live animal exhibits and investigate the concerns for our future ocean. Hands-on exhibits will highlight what makes our Southern Ocean special and how we can step up as kaitiaki for our marine environment.

Mathematics and Statistics

Warp your point of view by travelling near the speed of light. See how gravitational waves bend spacetime. Fall into a fractal. Wrap your head around some curly probabilities. Try your hand at some tricky puzzles in our chill-out zone.

Microbiology and Immunology

Fresh foods, prepared foods and even preserved foods are often contaminated with spoilage microorganisms, as well as some pathogenic microorganisms that can cause disease. Microorganisms are important spoilage agents of foods, causing food shortages and economic loss.

Ngāi Tahu Māori Health Research Unit

Join us on a journey through the science of medicines! Get hands-on with nature's medicine chest to discover and explore rongoā rākau and where medicines come from. Investigate how medicines are made, and how to use them safely to protect ourselves and our planet. Get creative and Go Viral at our D-Bug Game Design station – use modelling clay to sculpt your very own virus-related game character and 3D scan your creation to see your character come to life.

Pharmacy

Come along and learn how medicines are created, the different ways we can administer medicines to people, and what's in store for the future!

Psychology

Psychology is the science of behaviour, brain and cognition. We explore the complex way humans and other animals interact with the world and each other, with topics like: Why do we copy what everyone else is doing? Why can't I concentrate after staying up all night? Why does my dog listen to me but not to my friends? Come along to participate in some classic psychology experiments and to find out more about Psychology.

Science Communication

Have you ever wanted to learn how to animate your own stories? Or bring your own art to life? Join the Department of Science Communication staff and students as they inspire you to start your own digital animation journey. At our mobile animation station, we will show you how to make simple 2D digital animations, as well as funky, fun, artistic, stop-motion animations.

Surveying

Measure, analyse and visualise our world through the science and technology of surveying and geospatial. Robotically measure where locations are in 3D. Build a digital urban model from millions of 3D points. Create live 3D landscapes in sand and experiment with virtual water flowing over your designed surface. Experience remote places through geospatial virtual reality. Explore 3D change in digital environments (of Dunedin, Whakaari White Island) built from 3D reality capture technology.

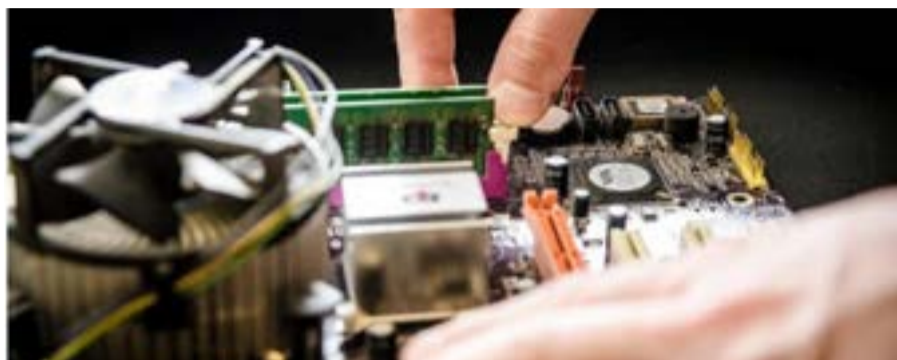
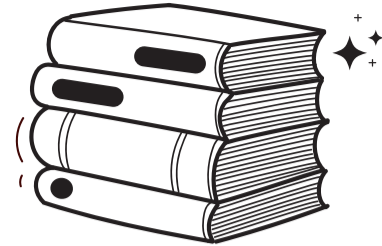
Zoology

What kinds of animals live in and around Dunedin? What animals lived here in the past, and what animals might live here in the future? Come and see what animals are around us, and how and why scientists in the Department of Zoology are studying them.

For further information and an expo map, visit:
scifest.org.nz/programme/expo



DUNEDIN PUBLIC LIBRARY EVENTS



COMPUTER DECONSTRUCTION WORKSHOP



SAT 1 JULY AND SAT 8 JULY • 11AM AND 1PM • 90MIN
DUNEDIN PUBLIC LIBRARY • FREE

Strip it, rebuild it, plug it in and make it go – a computer deconstruction workshop. If you don't have a computer at home, sign up at the event to get a FREE working computer, plus peripherals (monitor, keyboard, mouse and cables) to take home for your homework.

For ages 12-18yrs but children between 8yrs and 12yrs may attend with an adult.



E-WASTE RECONSTRUCTION



SUN 2 JULY AND SUN 9 JULY • 1PM, 2PM, 3PM • 60MIN
DUNEDIN PUBLIC LIBRARY • FREE

Come to these DIY workshops to experiment in a series of electronic and mechanical projects and make use of resources recovered from e-waste. You will cover a range of topics and make items that you can take home.



YOUTH ROBOTICS ARTPLAY



SAT 1, SUN 2, SAT 8 AND SUN 9 JULY • 11AM, 12PM, 1PM, 2PM • 60MIN
DUNEDIN PUBLIC LIBRARY • FREE

Can a robot do your homework?

See if you can instruct a virtual robot to draw something on a computer (or try one of our pre-made designs) and then test to see if your design can be produced on a real robot (Otago Polytechnic's mini KUKA robot). You can take your robotically drawn design home. Of course the applications are endless – just think what other tasks a robot could do for you...



FINGERPRINTING FORENSICS - AN ORITAIN MYSTERY



MON 3 JULY • EVERY 20 MINS FROM 10AM TO 12PM
DUNEDIN PUBLIC LIBRARY • FREE

Detectives have long used human fingerprints as a form of evidence with cracking forensic cases, but did you know that there are also other types of fingerprinting? Explore different ways of fingerprinting, including chemical fingerprinting, origin fingerprinting, and other fun real life forensic techniques. Become a forensic investigator as we work to solve a puzzling crime.



FIGHT LIKE A PHYSICIST

MON 3 TO WED 5 JULY • 2PM • 60MIN • DUNEDIN PUBLIC LIBRARY • FREE

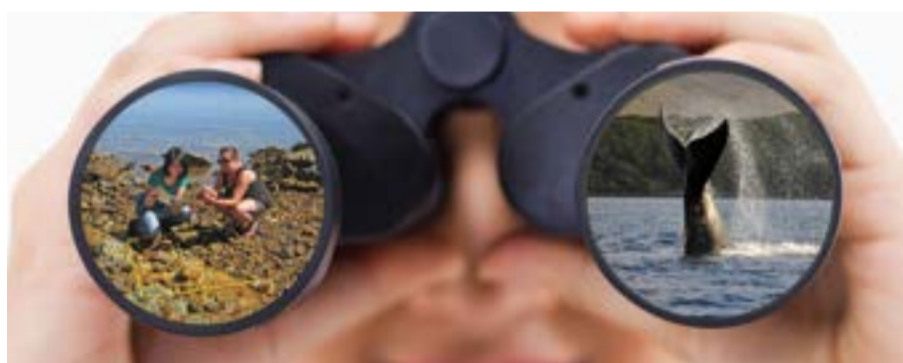
An interactive workshop where you will learn the basics of the martial arts karate. The underlying physics of movements, techniques and safety gear will be discussed and practised. No experience necessary, come with an open mind, and be prepared to move! All ages welcome.



CLASH OF THE TRASH: ORGANICS AND LANDFILLS

WED 5 JULY • 11AM • 60MIN • DUNEDIN PUBLIC LIBRARY • FREE • DROP IN

We all produce organic wastes, whether these are food scraps or garden waste. Learn from the Dunedin City Council Waste and Environmental Solutions team what happens when they receive your organic waste. You'll also discover what the best options are to deal with organics and hear about changes coming up following the adoption of the Aotearoa New Zealand Waste Strategy 2023, for a more sustainable Aotearoa.



COASTAL CARE WITH CITIZEN SCIENCE

TUE 4 JULY • 6PM • 60MIN • DUNEDIN PUBLIC LIBRARY • FREE

What sharks visit Otago Harbour? How will ocean-warming affect marine life? How do we monitor the health of our coastal environment? Join Rob Lewis for a one-hour talk that gives insight into citizen science at the NZ Marine Studies Centre and the Department of Marine Science, University of Otago.



JUNIOR HEART SCIENCE

FRI 7 JULY • 1PM • 60MIN • MOSGIEL LIBRARY • FREE
FRI 7 JULY • 4PM • 60MIN • DUNEDIN PUBLIC LIBRARY • FREE

Through a hands-on interactive session, learn all about hearts and answer questions such as: How does the heart work? What makes the heart beat? Is a mouse heart the same as a whale heart? Can we measure what happens when you exercise? These one-hour workshops are suitable for children aged 6-10 years.

WATCH!



THE MESSY FUN SCIENCE WITH AMADEO SHOW! 🧪 ●

FRI 7 JULY • 3PM • 60MIN • VENUE TBC – CHECK WEBSITE • FREE

Experience messy, mucky, sticky, slimy science in this spectacular science show featuring *Fun Science with Amadeo*. There will be gross goop, squishy sludge, and a big big mess for the NZISF!



THE PHYSICS OF HOT AND COLD 🧪 ●

SAT 8 JULY • 11AM, 2PM • 60MIN
UNIVERSITY OF OTAGO – ST DAVIDS LECTURE THEATRE • FREE

Do you like winter and the cold? How cold can you withstand? Can we hold a boiling liquid in our bare hands? The Department of Physics invites you for an experimental investigation of our everyday phenomena.

We plan a small journey through the realms of hot and cold and challenge our everyday understanding of force, pressure, sound, temperature, and more. Come along and see some experiments you can recreate at home and some that you definitely should not!



MYSTERIOUS CHEMISTRY 🧪 ●●

SUN 9 JULY • 11AM, 2PM • 60MIN
UNIVERSITY OF OTAGO – CASTLE 1 LECTURE THEATRE • FREE

A series of activities where students from the University of Otago Chemistry Department demonstrate some of their favourite experiments and make a mess with liquid nitrogen, hydrogen and helium with guaranteed bangs and smoke, plus the mysterious properties of a jelly baby.

Then, with the help of the audience, they will explain the activity. There will also be opportunities for audience volunteers to take part and get up close and personal with the chemistry.

WATCH!



SPONTANEOUS REACTIONS

SAT 1 JULY • 2PM • 45MIN • NEW ATHENAEUM THEATRE • \$20 | \$15

Improsaurus is bringing you an improvised show about science (sort of)! Using audience suggestions, the team of 'scientists' will attempt to solve some of the world's greatest mysteries (maybe). A fun way for teens to learn about the scientific method, science communication, and the importance of improvisation!



FUN SCIENCE WITH AMADEO AT THE OBSERVATORY!

WED 5 JULY | 12PM – 2PM, THU 6 JULY | 7PM – 9PM
BEVERLY BEGG OBSERVATORY • \$5

Enjoy some amazing astronomy demonstrations and activities at the Beverly Begg Observatory. We'll be making a comet, sending marshmallows to the vacuum of space and much more! There are two events, one during the day and one at night.



EXPLORE!



EXPLORING DUNEDIN'S VOLCANO 📍 ●

SAT 1 JULY • 10AM, 11.30AM • 60MIN • PORT TO PORT CRUISES • \$58 | \$28

A special cruise for the school holidays! Explore the history and sights of Dunedin's extinct volcano from the boat! Receive an explosive commentary from the skipper and volcano expert as we go!

A science educator and geologist will be onboard to help identify the different layers of lava you will see and the dykes of rock where lava had tried to flow and then got frozen in time!

Make a volcano onboard the boat to explode!



EXPLORING THE DUNEDIN NIGHT SKY AND ALL ITS WONDERS 📍 ●

SAT 1, MON 3, SAT 8, SUN 9 JULY • 7PM • 120MIN
BEVERLY – BEGG OBSERVATORY • \$5

Get to know the southern night sky in this fun, safe, and educational night out and see the Beverly-Begg Observatory's scientific work up close.

Outside, there will be guided laser pointer star tours, and telescopes pointed at some of the most interesting spots in our southern sky.

To find the Beverly-Begg Observatory, park in Ross Street and follow the path beside the rugby field. Please note there are no toilet facilities available at the observatory.



WD TROTTER ANATOMY MUSEUM: GUIDED TOURS 📍 ●

SAT 1 JULY • 10.30AM, 1PM, 3PM • 90MIN
SUN 2 JULY • 10.30AM, 1PM • 90MIN
UNIVERSITY OF OTAGO – ANATOMY MUSEUM • FREE

Alongside the more modern specimens of anatomy many of the models and specimens in the Anatomy Museum date back at least 100 years. A walk around the museum brings to life the wonders of the human body. No minimum age, but children under 14 must be accompanied by an adult. No food, drink, cameras or other recording devices are permitted in the museum. You will be met at the door. This event is wheelchair accessible.



THE SCIENCE OF CHOCOLATE 📍 ●

SUN 2 JULY • 2PM | MON 3 JULY • 7PM • 60MIN • OCHO FACTORY • \$25 | \$20

Have you ever wondered how chocolate is made? Have you ever wondered why you crave it? Would you like to learn the art of how to truly savour it?

Head to OCHO, the home of chocolate-making in Dunedin, and learn about the science behind this amazing treat. The presentation will include a tasting journey of ten different chocolates, as well as a viewing of the largest bean to bar factory in New Zealand.



VISIT INNOVATION! 📍 ●

THU 6 JULY • 9.30AM, 10AM, 11AM, 11.30AM, 1PM, 1.30PM, 2.30, 3PM
45MIN • FISHER & PAYKEL DESIGN CENTRE • FREE

Experience Cooking Lab demos where expert chefs demonstrate scientific principles behind dishes. Explore acoustics in the Sound Room, observe spray arms' cleaning power, and see intricate 3D-printed appliance parts. Witness the technology in Fisher & Paykel's products and testing.

Don't miss this chance to visit their facilities and see science and innovation come to life.



CNC MACHINING AND 3D PRINTING ADVANCED MANUFACTURING TOUR 📍 ●

FRI 7 JULY • 10AM, 12PM, 2PM • 60MIN • UNITED MACHINISTS • FREE

Join United Machinists' CEO Sarah Ramsay and her team for a walk through of United's advanced manufacturing facility. Suitable for anyone curious about how things get made, especially the next generation of manufacturing engineers. Observe fully automated 5-axis machining, robots in action and metal and plastics 3D printing. Meet some of United's young apprentices and graduates, and hear about their career pathways and some of the exciting medical, aerospace and hi-tech products they help make.



EXPLORING OUR MARINE ENVIRONMENT THROUGH VR 📍 ●●●

THU 6 JULY • 12PM, 2PM • 60MIN
NZ MARINE STUDIES – CENTRE UNIVERSITY OF OTAGO • \$10

This is an engaging, inspiring and educational one-hour session where you can experience VR videos filmed by New Zealand Geographic in marine environments around Aotearoa. Compare northern marine environments with ones in the deep south, and pristine marine environments with degraded ones. Investigate what causes this damage with a focus on overfishing and pollution, as well as what actions can be taken to show kaitiakitanga and protect the moana.

Please note - this event may not be suitable for those who experience photosensitivity or epilepsy.



KĀI TAHU EXPERIENCE AT TE NOHOAKA O TUKIAUAU / SINCLAIR WETLANDS 📍 ●

FRI 7, SAT 8 JULY • 10AM, 1PM • 90MIN • SINCLAIR WETLANDS • FREE

Te Nukuroa o Matamata is a Job for Nature project managed by Te Rūnaka o Ōtākou, that has operated in the lower Taiari since 2021. It aims to reverse the negative effects of drainage, adverse land use practices in the Waihora / Waipōuri wetlands, and promote Kāi Tahu traditional knowledge. You are invited for a guided hiko (walk) through the Te Nohoaka o Tukiauau / Sinclair Wetlands, an opportunity to learn about local history, rokoā (medicines), and raraka (weaving) materials of importance to manawhenua. You will also experience the Te Runaka o Ōtākou vision for the future of the environment.

LISTEN!



PEERING THROUGH THE HAZE LET'S TALK ABOUT VAPING

SUN 2 JULY • 2PM • 60MIN
UNIVERSITY OF OTAGO – HUNTER CENTRE • FREE

Have afternoon tea and a kōrero about the impact of vaping on our community. How do we protect rangatahi from vaping? What do rangatahi themselves think about vaping? And what are some of the actions we could consider?

This Cafe Scientifique-style event will start with short presentations about the impacts of vaping. Then we'll mix it up and ask what you think, in an informal, interactive discussion that will be valuable for teens and adults alike.



THE IMPACTS OF PLASTIC POLLUTION ON MARINE ANIMALS

FRI 7 JULY • 4PM • 60MIN
NZ MARINE STUDIES – CENTRE UNIVERSITY OF OTAGO • FREE

The intense consumption and rapid disposal of plastic products is leading to the widespread accumulation of plastic debris in marine ecosystems. Coastal ecosystems are especially vulnerable to plastic pollution owing to their proximity to terrestrial sources of plastic pollution, but also due to oceanic currents and wind patterns depositing plastic debris on coastlines. Dr. Bridie Allan will discuss the sources and fate of marine plastics, along with the broad impacts on marine animals. Tea, coffee and kōrero at 3.30pm, the seminar will begin at 4pm.



SHORT TALKS: FORGING YOUR OWN PATH IN THE SCIENCES AND TECH

WED 5 JULY • 5PM • 60MIN • ADINSTRUMENTS • FREE

In this one-hour event, ADInstruments staff share their career journeys in a quickfire slide format. Attendees will learn about possible career paths in the sciences and NZ tech industry, and maybe even get some advice on alternative paths.

Following the presentations, there'll be an opportunity to mingle with speakers and ask any additional questions over drinks and nibbles.



SCIENCE ACADEMY SCIENCE COMMUNICATION EXPO

FRI 7 JULY • 3.30PM • 120MIN
UNIVERSITY OF OTAGO – LINK COMMON ROOM • FREE • DROP IN

The University of Otago's high school Science Academy Year 13 students from rural, provincial, small and lower decile schools across New Zealand will share their passion for science. There will be a series of engaging short talks, films, and chats about museum artefacts and podcasts that they have been working on after school between their January and July Science camps. Each group will be introduced by their tutor and, as this is their first opportunity to present to a public audience, they would welcome a big friendly audience!



BEACH CLEAN FOR THE BLUES

SUN 2 JULY • 1PM • 120MIN • ROYAL ALBATROSS CENTRE • FREE

Have a hand in helping the habitat of the blue penguins stay clean and healthy!

Located at the tip of the Otago Peninsula, Takiharuru (Pilots' Beach) is a reserve where the little blue penguins arrive home each evening. Litter is a major problem for our coastlines and Takiharuru is not exempt from this problem. Join a Litter Intelligence programme and conduct a beach clean and a survey of the collected litter types to learn its varying impacts to the environment.

All participants will be eligible for an evening Blue Penguin Pukekura tour.



FUN SCIENCE WITH AMADEO AT MOANA POOL!

MON 3 JULY TO FRI 7 JULY • 4PM • 60MIN • MOANA POOL • FREE

Groups of kids will do science experiments in the pool. From octopus propulsion to making tsunamis, the pool has lots to offer curious scientists! Each session has a different focus – biology, geology, physics, chemistry, and astronomy. Look for Amadeo and the Fun Science sign in the Leisure Pool and join in!



TAOKA PŪORO AND MIHEKE ORO – MUSICAL INSTRUMENTS OF MĀORI AND MORIORI

MON 3 JULY • 12PM • 60MIN • TE WHARE O RUKUTIA • FREE

Hear the evocative sounds of taoka pūoro and miheke oro in a workshop with Jennifer Cattermole, one of Aotearoa's leading ethnomusicologists (School of Performing Arts, University of Otago). Jennifer will help you have a go at making music with musical treasures and with found objects. This workshop is suitable for young adults and up.



PIRATE'S PLUNDER: THE MYSTERY OF THE STOLEN TREASURE

MON 3 JULY, TUE 4 JULY – 12PM, 2.30PM | WED 5 JULY – 9.30AM
PIONEER HALL – PORT CHALMERS • 90MIN • \$18 | \$14
THU 6 JULY TO SUN 9 JULY – 9.30AM, 12PM, 2.30PM
GASWORKS MUSEUM – SOUTH DUNEDIN • 90MIN • \$18 | \$14

Join us for an unforgettable family-friendly adventure. Immerse yourself in an interactive *Science of Crime* experience that will transport you and your little buccaners to another world of swashbuckling fun and adventure. Gather your family and friends and form a team of up to six individuals, or join other aspiring detectives on the day. You'll encounter hidden evidence, secret puzzles, and use your detective skills to solve the mystery of the stolen pirate treasure. This event is ideal for families with children 5+ years, designed to be solved together.

DO!



BUILDING WITH NATURAL MATERIALS 🛠️ 🟡 🟢

TUE 4 JULY • 10AM • 120MIN • SOUTHERN YOUTH DEVELOPMENT • FREE

What if we could only build with materials from our local environment? What if our buildings were good for the environment and for people? Look at how different natural materials have been used for building over time. Explore the materials in our environment that can be used for building, and then design and build a model from the materials at hand.



BE A CITIZEN SCIENTIST! 🛠️ 🟢

WED 5 JULY • 10AM • 150MIN
NZ MARINE STUDIES – CENTRE UNIVERSITY OF OTAGO • FREE

Help The NZ Marine Studies Centre, the Department of Conservation and Sustainable Coastlines monitor the shore with Marine Metre Squared and Litter Intelligence. See what animals and seaweeds you can find, and survey the coast for litter. Add to these important national databases, be a citizen scientist, and earn a Kiwi Guardians Citizen Science Medal! All ages welcome, children must be supervised. This is an outdoor event see the website for more info.



FRI 30 JUNE TO SUN 9 JULY • 10AM – 5PM • MERIDIAN MALL
EXHIBITION – FREE • WORKSHOP – \$18



HEARTOTAGO DISSECTION LAB KIDS' EDITION 🛠️ 🟡 🟢

WED 5 JULY • 10AM, 2PM | THUR 6 JULY • 10AM • 90MIN
UNIVERSITY OF OTAGO – DEPARTMENT OF PHYSIOLOGY • FREE

Dissect a lamb's heart, and learn the basic physiological functions of the heart, guided by the expert HeartOtago crew who will lead the way!



ANATOMICAL DRAWING WORKSHOP 🛠️ 🟢

WED 5 JULY • 10AM • 150MIN
UNIVERSITY OF OTAGO – ANATOMY MUSEUM • FREE

This workshop will focus on how drawing textures can help make your drawings pop into 3D, while practicing both observation skills and wielding some creative license.

Suitable for all drawing skill levels. To focus on the details, base images will be provided, but you may create your own.

COSMIC 🟢

This exhibition collects projects solving environmental issues developed by young people around the world, including Brazil, Taiwan, Japan and Italy, fusing the two cultures of science and art. The COSMIC exhibition does not just mean a boundless future, but also at least one project about Coast, Ocean, Sun, Mountain, Island, and Cloud.

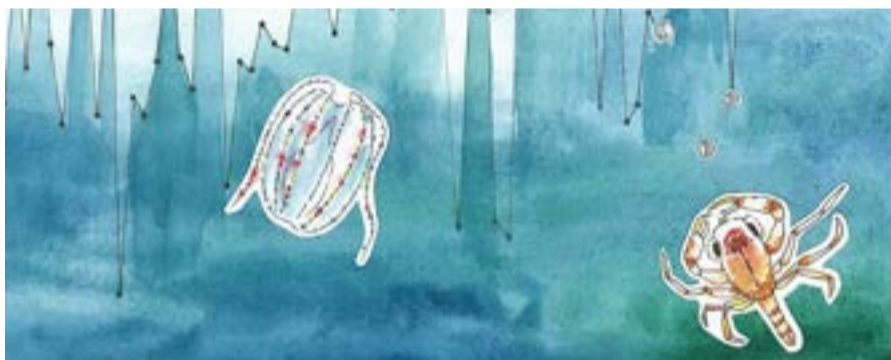
There are free talks every morning at 10 and 10:30, and paid science workshops for families at 1:00 pm, 2:30 pm, and 4 pm every day! Please see the online event listing for a full schedule of activities.



UPCYCLED FOOD WORKSHOP

FRI 7 JULY • 10.30AM • 120MIN
UNIVERSITY OF OTAGO – FOOD SCIENCE PORTCOM LAB • \$5

There is a growing appetite for both plant-based milks and upcycled food. In this workshop, you will be guided by food scientists from our Upcycled Food Lab to learn how to make both! First, you'll make a plant-based milk and then you'll upcycle the by-products into a new and tasty treat such as cookies, crackers, or cake. You will also get to take snacks home! Our Upcycled Food Lab scientists will teach you along the way about food science and upcycled food processing.



OUR OCEAN – BRINGING MARINE CLIMATE DATA TO LIFE

SAT 8 JULY • 10AM – 4PM
NZ MARINE STUDIES – CENTRE UNIVERSITY OF OTAGO • FREE

Transform data into stories and artworks in an immersive workshop exploring ocean climate change. Capture visual stories of local marine species that give meaning to scientific data and enhance the visibility of our changing ocean and the threat the changes pose to local marine life. Enhance your art with local and global data, as well as collecting your own data using plankton tows, microscopes, and more. Learn and develop art skills with a guest artist, as we work towards an art exhibit. No art or science experience necessary!



ARTIFICIAL LUNGS – WHY DOESN'T MY INHALER WORK PROPERLY?

SAT 8 JULY • 11AM, 1PM • 60MIN
UNIVERSITY OF OTAGO – SCHOOL OF PHARMACY, LAB ROOM 610 • \$5

You may be using an inhaler for asthma or other lung diseases. You wonder why your inhaler sometimes gives the relief you want, but sometimes it doesn't. In this workshop, see how your breathing can affect your medicine's delivery to your lungs. See an artificial lung at the School of Pharmacy – have your breathing capacity tested to see where and how much drugs go to your lungs when you take a puff from an inhaler.



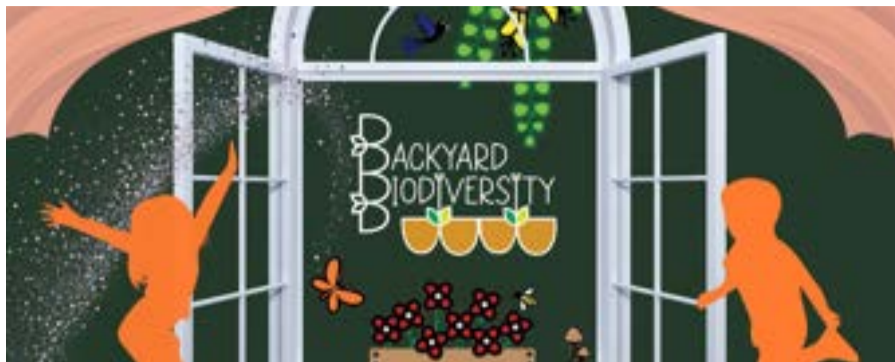
EDIBLE INSECTS: TREAT OR TRICK?

SAT 8 JULY • 2PM • 120MIN
UNIVERSITY OF OTAGO – FOOD SCIENCE PORTCOM LAB • \$10

Edible insects have been reported to be nutritious, healthy, economical, and a sustainable food resource. But have you ever wondered what various edible insects taste like – on their own and in as an ingredient in another product? Join us to find out.

We will make and eat edible insect ice cream! Yum! We will also cover some interesting facts on what people round the world say about the taste of edible insects and insect products. You don't want to miss it.

SEE!



BACKYARD BIODIVERSITY ●

FRI 30 JUNE TO SUN 9 JULY • 10AM – 2PM
GOLDEN CENTRE MALL • FREE • DROP IN

Backyards can be refuges for wildlife, dens for children, sources of food and nourishment, and spaces of speculation on what might have gone on before and what may be occurring out of sight. Backyards can tie us to the rhythms of nature, space to relax and enjoy with others.

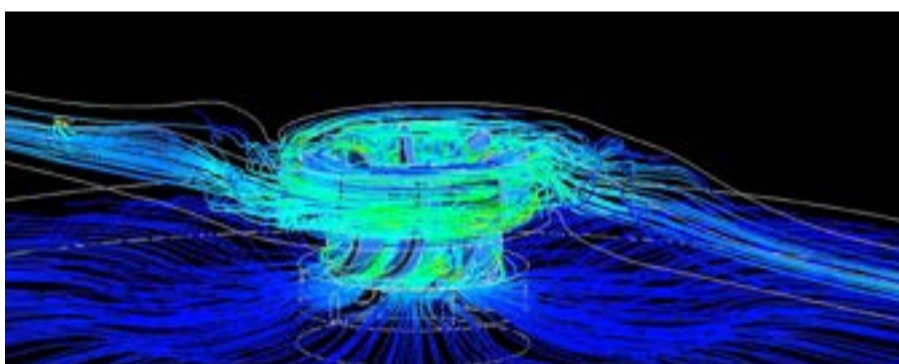
Caring for our backyards can give us a sense of achievement, inspire us and heal us. Visit the visual and interactive exhibition for all ages to learn about plants, animals and inspiring stories. See online for activity details including Bird Masks, Chocolate Fish Index and Backyard Biodiversity Book Builder.



OUR AIR, OUR BREATH, OUR WIND ●

MON 3 TO SUN 9 JULY • 10AM – 4PM
TE WHARE O RUKUTIA • FREE • DROP IN

We are air-born. We can last three weeks without food, 3-4 days without water, but mere minutes without air. In Te Ao Māori, hau is the breath or wind of life. Hau is the force that drives the entire world, not just human relations. Air/breath/wind is the nebulous thing that connects all living beings. Come by the gallery to see a variety of hands on activities from community projects including Insp-AIR-ation (art and science), Air Time Mosaic, Otago Harbour air quality, Backyard Diversity artworks and Taoko Pūoro and Miheke Oro – Musical Instruments of Māori and Moriori.



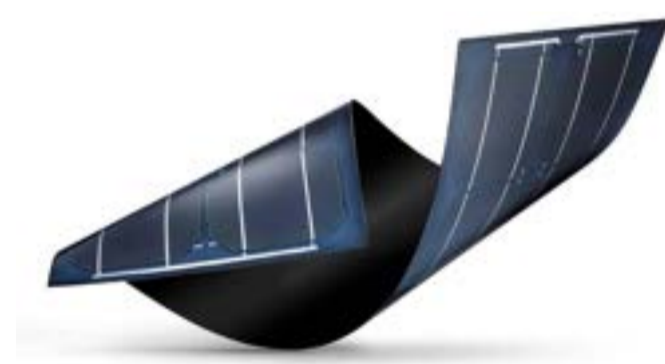
THE SCIENCE AND TECHNOLOGY OF EVERYDAY APPLIANCES ●

TUE 4 TO THU 6 JULY • 11.30AM – 1.30PM
WALL STREET MALL • FREE • DROP IN

Go on an adventure into the captivating world of the science and technology behind your appliances!

Unveil the secrets of steam for perfect cooking, witness the incredible magic of dishwashing, and peek inside the workings of appliances. Watch high-speed pump imagery and experience the thrill of auto-opening doors. Discover why dishwashing liquid has no place in your dishwasher and the fascinating science of how food temperature affects taste.

Satisfy your curiosity and uncover the mysteries behind everyday appliances with this unforgettable experience of fun and learning!



THE FUTURE IS NANO ●●●

TUE 4, THU 6 JULY • 11AM – 1PM • MERIDIAN MALL • FREE • DROP IN

What if a boat could have sails made of solar panels? What if your school's windows could help power your school and you could still see through them? Just how small is a nanoparticle, and why does it matter? Join Tūhura's science team at this nanoscience pop-up that proves great things really do come in very small packages.

In partnership with MacDiarmid Institute for Nanotechnology.

FESTIVAL GUEST: PROF TIM JACKSON (UK)



Prof Tim Jackson is an ecological economist and writer. Since 2016, he has been Director of the Centre for the Understanding of Sustainable Prosperity (CUSP) at the University of Surrey in the UK.

From 2004 to 2011, he was Economics Commissioner for the UK Sustainable Development Commission where his work culminated in the publication of *Prosperity without Growth* (2009/2017) which was subsequently translated into 18 foreign languages worldwide.

It was named as a *Financial Times* book of the year in 2010 and was *UnHerd's* economics book of the decade in 2019. His latest book *Post Growth – Life After Capitalism* was published by Polity Press in 2021 and won the 2022 Eric Zencey Prize for Economics. In 2016, Tim was awarded the Hillary Laureate for exceptional international leadership in sustainability.

The New Zealand International Science Festival is excited to host Prof Jackson this year which has been made possible thanks to the support of the British Council New Zealand and the Pacific.



PLAYWRITING PANEL

SAT 8 JULY • 2PM • 90MIN • ALLEN HALL THEATRE • FREE

In addition to his academic work Prof Tim Jackson is an award-winning versatile dramatist with numerous BBC radio-writing credits, which have helped bring scientific controversies to a wider audience. He has explored the complexity of altruism and the controversy of ivory poaching, and has written an environmental thriller series exploring the conflict between the environment and development. University of Otago Associate Professor in Theatre Studies Hilary Halba and Playwriting Fellow Amanda Faye Martin join Tim for a discussion writing science and environmental issues into narrative, featuring extracts from Tim's plays.



POST GROWTH LIFE AFTER CAPITALISM

SAT 8 JULY • 5.30PM • 90MIN • PETRIDISH • FREE

Capitalism is broken. The relentless pursuit of more has delivered climate catastrophe, social inequality and financial instability – and left us ill prepared for life in a global pandemic. Weaving together philosophical reflection, economic insight and social vision, Tim's passionate and provocative book dares us to imagine a world beyond capitalism – a place where relationship and meaning take precedence over profits and power. For this evening talk inspired by his latest book, Tim will be joined by the Director of the University of Otago Centre For Sustainability, Associate Prof Caroline Orchinson.

GROWN UPS!



FOOD WASTE? LET'S MASH IT! 🍷 ●

SUN 2, SUN 9 JULY • 2PM • 150MIN • DUNEDIN CRAFT DISTILLERS
\$65 | \$50 • 150MIN

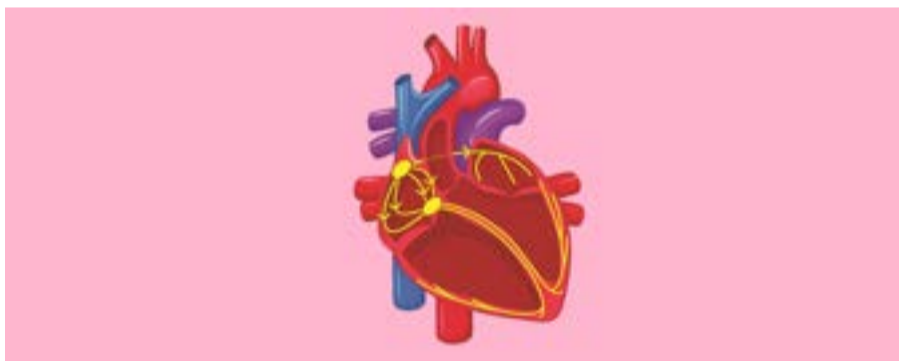
Bring your bread crusts! Your stale muffins! The abandoned bakery scraps growing stale in your cupboards! Join Dunedin Craft Distillers to mash bakery waste into premium spirits. You'll create your own brewers mash, and they'll discuss the science behind turning food waste into spirits. The afternoon includes a full distillery tour and discussion of environmental impact and concludes with spirit tasting and nibbles.



IS SCIENCE MAKING OUR FOOD SAFER? 🍷 ●

MON 3 JULY • 6PM • 75MIN
UNIVERSITY OF OTAGO – ST. DAVID'S LECTURE THEATRE • FREE

Kim Hill, RNZ presenter, chairs a panel discussion organised by the NZ Food Safety Science & Research Centre. Is science helping or hindering the seemingly unending challenges with our modern food production systems: the emergence of new or deadlier pathogens and pests, increased scrutiny of chemical use, the packaging revolution and climate change? This event will be recorded for later broadcast by RNZ. There will be time for questions following the panel.



COMMUNITY KŌRERO ABOUT HEART HEALTH 🍷 ●

MON 3 JULY • 5.30PM • 90MIN
UNIVERSITY OF OTAGO – TERRACE LOUNGE • FREE

This panel discussion features a mix of community members, researchers and clinicians.

The panel will discuss personal stories of heart health and discuss ways to seek help around common cardiovascular diseases such as hypertension and heart attacks, as well as heart diseases associated with Diabetes.

In this community kōrero, the panel will also discuss the importance of following prescribed medications and patient care plans, with a special focus on heart health within our Māori and Pacific communities. There will be plenty of time for questions and answers.



MURDER, MYSTERY, AND MIXOLOGY: A KILLER NIGHT OUT 🍷 ●

MON 3, TUE 4 JULY • 6.30PM – 9PM | WED 5 JULY • 6.30PM – 9PM
PIONEER HALL – PORT CHALMERS • \$46 • R18
THU 6 TO SUN 9 JULY • 5PM – 7.30PM, 8PM – 10.30PM
GASWORKS MUSEUM – SOUTH DUNEDIN • \$46 • R18

Become a detective for the night to uncover evidence, decipher clues, and bring a killer to justice. Forensic experts will be on hand to help with your investigation, while Alchemist Mixology provide custom cocktails and appetisers to fuel your detective work. With logic, quick wits, and attention to detail, you and your team will explore the immersive crime scene to work out how, when, and who committed the crime. Your ticket includes a free drink on arrival and a bar is open throughout the evening. Have an unforgettable night of mystery and suspense!



TACKLING FOOD WASTE TOGETHER: ACTIONS AND INNOVATIONS

TUE 4 JULY • 3.30PM • 90MIN
UNIVERSITY OF OTAGO – CASTLE 1 LECTURE THEATRE • FREE

Food waste is a wicked problem and requires a collaborative effort to address it. In this panel discussion hosted by the University of Otago's Food Waste Innovation Group, you will hear from leaders in four of the key sectors in this mission: government, research, industry, and non-profit. Each panelist will explain how they are addressing food waste in their world, and what the public can do to support this mahi with time for audience questions. Panelists include the Prime Minister's Chief Science Advisor Dame Juliet Gerrard and the University of Otago's Professor Miranda Miroso.



MYTH BUST

FRI 30 JUNE • 9PM • 60MIN • NEW ATHENAEUM THEATRE • \$20 | \$15 • M15+

Improsaurus is Dunedin's premier (and only) improvised theatre group and they are so excited to bring you the science-themed late night show – *Myth Bust!* Using audience suggestions, the team of improvisers will create a one-hour show on the spot. Will they solve the myth? Maybe. Will they use entirely factual information? Probably not. Will you have a blast? Absolutely.

If you are new to science, or new to going to the theatre, improvisation is a great way to see how arts and science intertwine.



KIWI KAI – DIGITAL LEARNING TEACHERS' WORKSHOP

TUE 4 JULY • CARISBROOK SCHOOL • 9AM – 12.30PM • FREE
THU 6 JULY • ONLINE • 10AM • 60MIN • FREE

Have a go with Kiwi Kai, a new online learning tool co-designed with Year 5-8 Ōtepoti students. It explores how a healthy environment nurtures healthy food and people, integrating mana ōrite me te mātauranga Māori with science and literacy to aid students in making informed decisions for sustainable action.

It encourages students to explore concepts and consequences from multiple perspectives, while developing comprehension skills, critiquing evidence, problem solving and systems thinking.

The workshop will be facilitated by Davina Hunt and students.



WOMEN IN SCIENCE BRUNCH

SUN 9 JULY • JOE'S GARAGE • 10.30AM – 12.30PM • \$40 • R18

Calling all women in science! Treat yourself to a delightful Sunday morning brunch, some casual networking and short talks from women in a wide range of science careers. Speakers will be discussing transferable skills – how aspects of their non-work life make them a better scientist and how their scientific prowess is applicable at home. Have some laughs and learn life lessons, meet other women in science from the Dunedin area, and of course, eat pancakes! This event is focused on women in science, but all are welcome.

Presented with support from AWIS.

EVENING TALKS AT PETRIDISH



AI AND THE WORKFORCE

MON 3 JULY • 5.30PM • 120MIN • \$15 | \$10

Delve into the implications of AI technologies, exploring how they are reshaping industries and job markets worldwide. Gain valuable insights from University of Otago academics who will discuss this new technology's philosophical and ethical repercussions and the challenges and opportunities that lie ahead. From the impact on traditional professions to the emergence of new roles, this panel discussion will provide a comprehensive understanding of the transformative power of AI.



Petridish
SHARED OFFICE SPACE



THE FUTURE OF ENERGY

SUN 2 JULY • 5.30PM • 120MIN • \$15 | \$10

As more aspects of our lives electrify, reliable and efficient energy production, distribution and storage will become increasingly important. From developing a smarter grid for more efficient transfer to smart devices in homes that enable efficient use, the energy landscape is ripe for change. Learn what the future of energy may hold for Aotearoa New Zealand and how consumers can support positive change.



HEALTHIER KIWIS: A NATIONAL SCIENCE CHALLENGES PANEL

TUE 4 JULY • 5.30PM • 120MIN • \$15 | \$10

How can we improve the health and wellbeing of kiwis across all age, cultural and economic spectrums? Drawing on research from the National Science Challenges, these talks will focus on supporting and improving our collective mental and physical wellbeing.



LIVEABLE CITIES: A NATIONAL SCIENCE CHALLENGES PANEL 🍷 ●

WED 5 JULY • 5.30PM • 120MIN • \$15 | \$10

How can we adapt our cities and the way we inhabit them to make them more liveable in an era of climate change? A wide range of options will be discussed, from creating urban sponges to increasing flood resilience, encouraging food equity, changing the way we move around, and greening our cities to support mental health, all drawing upon research from the National Science Challenges.



FEEDING AOTEAROA: A NATIONAL SCIENCE CHALLENGES PANEL 🍷 ●

FRI 7 JULY • 5.30PM • 120MIN • \$15 | \$10

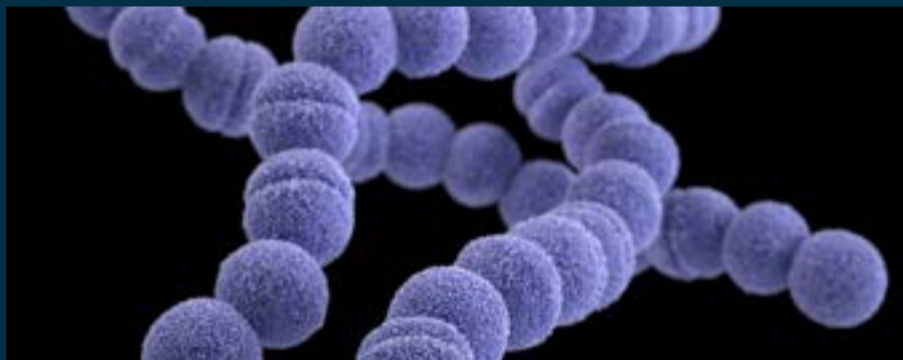
There's arguably little else more important than ensuring an adequate and healthy food supply for our people, and in our changing world, food systems will need to adapt. This panel will address the question: how can New Zealand move towards a food system that contributes positively to health, wellbeing, the economy and the environment? Panelists will discuss the current state of our food systems on land and at sea, and talk about what research is being undertaken to drive positive change.



ENABLING KAITIAKITANGA: A NATIONAL SCIENCE CHALLENGES PANEL 🍷 ●

THU 6 JULY • 5.30PM • 120MIN • \$15 | \$10

How do we remove barriers for Māori to enact kaitiakitanga and what does this look like in practice? Vision Mātauranga has been an integral part of the National Science Challenges, which has resulted in a wealth of kaupapa-based research and examples of Te Tiriti-based partnership and engagement. Come hear about some of these efforts from locally and nationally based researchers involved in this work.



ANTIMICROBIAL RESISTANCE 🍷 ●

SAT 8 JULY • 2PM • 120MIN • \$15 | \$10

Antimicrobial medicines are vital tools for treating a number of diseases. But it's no secret that some types of bacteria and other microbes that cause disease are developing resistance to these tools. What is being done to combat antimicrobial resistance and what new tools are being developed? Experts in the field will talk about the current state of antimicrobial resistance in Aotearoa New Zealand and the wider Pacific, and discuss what the future of this important research may hold.

GENERAL INFORMATION

Each event listing has details about the venue, performance dates, times, approximate duration and ticket prices. Many events will sell out so book in early to avoid disappointment.

TICKETS

For ticketed events, you need to book through the Science Festival website: scifest.org.nz. All ticket prices include GST.

Concession prices are available for some events for students, beneficiaries and senior citizens. Appropriate ID must be provided at the venue.

FREE EVENTS

Many of our free events need a ticket which you can book through the Festival's website. There is no charge or booking fee for these tickets.

REFUNDS AND CANCELLATIONS

Tickets cannot be refunded but are transferrable so if you are no longer able to attend, you can give your ticket to someone else. If an event is cancelled, full refunds will be issued.

SEATING AND ACCESSIBILITY

All events are general admission. Please arrive early if you have special seating requirements. Check the website or contact the venue for access information.

CHILDREN

All attendees under the age of 14 must be accompanied by an adult unless otherwise stated.

COVID-19

We are aware that COVID-19 remains active in our community. If you are feeling unwell, please stay home. Masks are welcome at all Festival events and will be available at some venues.

PROGRAMME UPDATES

At the time of printing, programme details were correct. However, changes may occur after publication so please check the Festival website scifest.org.nz for the latest information.

USE OF AI

As a science festival, we're always keeping up with the latest in scientific and technological advancements to see what we can present during the festival! Just this year, there have been major breakthroughs in generative artificial intelligence and we've been experimenting with them too. Our Festival poster and some event images have been made with Midjourney AI, and then worked on by our real (human!) designer. If you're interested in learning more about AI and its implications, check out our *AI and the Workforce* panel talk!

Can you guess which event images were made by AI?

FESTIVAL TEAM

Jerome Cousins
Festival Director

Andrea Liberatore
Associate Director

Ash Dawes
Production Manager

ART TEAM

Cover Illustration
Annah Taggart/Midjourney AI
Instagram: @annahtaggart

Branding
Walsh & Beck
walshandbeck.nz

Video Production
BOTU Productions
busoftheundead.co.nz

Website
Astronaut Digital
astronaut.nz

Hannah Molloy
Marketing Manager

Pippa Dold
Social Media Manager

Annah Taggart
Graphic Designer

EXECUTIVE COMMITTEE

Bridget Irving, President
Angela Clark, Vice President
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Michele Coleman
Suzi Flack
Mike Harte
Peter Jones
Dave McMorran
Helen Nicholson
Gianna Savoie



@nzscifest
enquires@scifest.org.nz

VENUES

- 1 AD Instruments 77 Vogel St
- 2 Beverly Begg Observatory 1A City Road, Belleknowes
- 3 Carisbrook School 217 South Road, Caversham
- 4 Dunedin Craft Distillers 8 Roberts St
- 5 Dunedin Public Library 230 Moray Pl
- 6 Festival Hub 26 Princes St
- 7 Fisher & Paykel Design Centre 211 George St, Level 1
- 8 Gasworks Museum 20 Braemar St
- 9 Golden Centre Mall 251 George St
- 10 Joe's Garage 19 Frederick St
- 11 Meridian Mall 285 George St
- 12 Moana Pool 60 Littlebourne Rd, Roslyn
- 13 Mosgiel Library 7 Hartstonge Ave, Mosgiel
- 14 New Athenaeum Theatre 23 The Octagon
- 15 OCHO Factory 10 Roberts St
- 16 Otago Museum 419 Great King St
- 17 Petridish 8 Stafford St
- 18 Pioneer Hall 45 George St, Port Chalmers

- 19 Port To Port Cruises 39 Peninsula Beach
- 20 Regent Theatre 17 The Octagon
- 21 Royal Albatross Centre 1259 Harington Point Rd
- 22 Sinclair Wetlands 854 Clarendon-Berwick Road, Berwick
- 23 Southern Youth Development 45 Maori Road
- 24 St. Leonards Hall 29 St Leonards Drive, St Leonards
- 25 Te Whare o Rukutia 20 Princes St
- 26 United Machinists 23 Thomas Burns St
- 27 Allen Hall Theatre (UoO) 350 Leith Walk
- 28 Anatomy Museum (UoO) 270 Great King St
- 29 Castle 1 Lecture Theatre (UoO) 75 Albany St
- 30 Department of Physiology (UoO) 270 Great King St
- 31 Food Science Lab (UoO) 65a Union Place
- 32 Hunter Centre (UoO) 279 Great King St
- 33 Link Common Room (UoO) 640 Cumberland St

- 34 NZ Marine Studies Centre (UoO) 185 Hatchery Rd, Portobello
- 35 School of Pharmacy (UoO) 18 Frederick St
- 36 St. David's Lecture Theatre (UoO) 70 St David St
- 37 Terrace Lounge (UoO) 640 Cumberland St
- 38 School of Business (UoO) 60 Clyde St
- 39 Teacher's College Auditorium (UoO) 145 Union St East
- 40 Waitati Hall 26 Harvey St, Waitati
- 41 Wall Street Mall 211 George St



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