Dean’s Welcome

Welcome to UNSW. Science is the gateway to the future, underpinning society’s advancement and pioneering the unknown. I hope you will enjoy exploring the diverse range of talks and activities we have on offer today, and continue developing your passion for discovery. A scientific education is the first step to a rewarding career where you will work on exciting projects with people who share your values, here or anywhere in the world.

Professor Peter Lovibond
Acting Dean, UNSW Science
Science Activities

Aviation

**Flight Simulator in room 226, Old Main Building, map reference K15**
UNSW Aviation has a purpose built general aviation flight simulator. The simulator comprises a replica training aircraft flight deck, complete with instrument panels and navigation equipment. Come and experience it for yourself!

Biotechnology and Bimolecular Sciences

**Science Lawn, map reference G13**
Would you like to solve real-world problems and undertake research in areas such as cancer, obesity, infectious diseases and immunology, drug discovery and delivery, renewable fuels or climate change? Learn about biotechnology, genetics, microbiology, and molecular cell biology within the School of BABS. You’ll have the opportunity to meet current students and academics, make biopolymer beads to take home, extract your own DNA and explore genome sequencing!

Biological, Earth and Environmental Sciences

**Science Lawn, map reference G13**
The world’s environments are fascinating and incredibly diverse, and so are the study options within BEES. Come and see what an environmental scientist does. We have a range of displays to show some of the research and activities happening within our School. Talk to current students and find out how a degree in Biological, Earth or Environmental Science might be just right for you.

Chemistry

**Opposite Chemical Sciences Building, (East end) map reference F10**
Chemistry has a profound effect on our planet and is involved in nearly every component of everyday life. It’s a central science that underpins many others, such as biology, materials science and nanoscience. Find out more about how almost every new technological change and important discovery has a foundation in Chemistry. Come and see us in action for spectacular demonstrations and hands-on activities. Try out reactions that oscillate, see combustion in action, and ask our current students and staff about life at #UNSWChem.

Climate Change

**In front of Red Centre, West Wing entryway, map reference H13**
At the Climate Change Research Centre, we examine questions about global warming, weather extremes and ocean circulation. Come and find out about the weird world of fluids in motion with our hands-on demonstrations. Forecast: fun with a chance of learning!

Materials Science and Engineering

**Opposite Chemical Sciences Building, map reference F10**
We will have an abundance of interactive activities and displays for you to explore. Plus, get all your questions about Materials Science, student life, and studying Materials Science and Engineering at UNSW answered by an orange army of students and staff.
Mathematics and Statistics

Science Lawn, map reference G13
Are you driven to understand the world around you? Do you want to predict what the stock market will do tomorrow? Are you passionate about climate change? Mathematics and statistics underpin these and many other real-world problems by uncovering patterns, decoding data, and modelling the natural world. Curious? Then come to our marquee and be inspired by the beauty and power of mathematics!

Psychology

Science Lawn, map reference G13
Psychology covers so many interesting and diverse areas it's impossible to list them all. Interested in behaviour, perception, learning, personality, memory, emotion, or social interaction? Take part in a range of interesting and unusual demonstrations. Come and find out about the fascinating world of Psychology and where a degree might take you.

Optometry and Vision Science

Science Lawn, map reference G13
Come and see our exhibit, including a model eye and optical illusions. See how well your eyes work together (stereo vision), and test your colour vision with our Ishihara test! Also, find out about the Optometry Clinic on the UNSW Kensington campus, and the services we offer.

UNSW Science Instagram
#tagsnap

In front of Red Centre, West Wing entryway, map reference H13
Do you want to pat a frill-necked lizard or – for the brave – let a python slither around your shoulders? We've got the perfect photo-op! Australian Wildlife Displays are bringing a range of native animals for you to meet, and the Tag Snaps booth will capture your candid moments on polaroids. Take a photo with your own phone and use the hashtag #unswscience to receive a beautiful print out!

Physics

Science Lawn, map reference G13
Physicists search for the laws which govern the behaviour of the universe - from the smallest sub-atomic particles, to the largest galaxies. Come and view Earth’s nearest star - the Sun - through the solar telescopes. Explore the laws which govern the behaviour of atoms. Meet researchers from the Centre for Quantum Computation and Communication Technology and learn about their ground breaking work. Talk to current students, or experiment with one of our many interactive displays.
Mathematics and Statistics Forum: A Golden Age
9:30-10am
Chemical Sciences
M18 [F10]
Current and former students of UNSW Mathematics and Statistics will discuss why maths and stats grads are in high demand in the workplace, what careers you can pursue with a maths and stats degree, and why maths is in the middle of its golden age, progressing and permeating our world like never before! Come along and pose questions to our panel, and be part of an inspiring discussion. Panel members include undergraduate students, School alumni, PhD students and School staff.

Optometry and Vision Science
9:30-10am
Keith Burrows Theatre [J14]
The Optometry/Science degree provides students with an understanding of the theoretical discipline of vision science and the clinical art of primary eye care. Vision science covers topics such as optics of lenses and instruments, the physiology of the eye, the psychophysics of vision and the neuroscience of the brain. Optometry includes the diagnosis and management of ocular disease, the dispensing of spectacles and contact lenses, the management of people with special needs (children, low vision), sports vision and vision in the workplace. The School of Optometry and Vision Science at UNSW is the largest optometry school in Australia that links its academic learning with clinical practice. It has a modern clinic providing a full range of optometry services. The School also houses a number of outstanding research units including the Optics and Radiometry Laboratory, and sits alongside the Brien Holden Vision Institute.

Psychology: Changing the world from the inside out
9:30-10am
Science Theatre [F13]
Psychology at UNSW is forging new frontiers in the science of the mind. UNSW Psychology is at the forefront of research in the fields of clinical, forensic and social psychology, cognition and perception. Find out more about the exciting research taking place at UNSW and how we’re making a difference from the inside out!
Aviation: Soar into an industry of challenge and opportunity

10:10-10:40am
Keith Burrows
Theatre [J14]

The Aviation industry is a global and economically important industry that brings people together, and expands horizons. From the technically challenging cockpit with awe-inspiring views, to the operational, logistical and financial management of airports and airlines with a range of security and safety challenges, studying aviation gives you the opportunity to influence the way people experience travel domestically and internationally. Find out how alumni and researchers are doing this and why UNSW Aviation is uniquely placed to train you for this exciting industry.

Chemistry and Medicinal Chemistry: Discoveries improving knowledge, health and society

10:10-10:40am
Chemical Sciences M18 [F10]

Chemistry is a central science dealing with the design, synthesis, analysis and properties of molecules. As a basic science, it is unique in providing opportunities for creativity. Medicinal Chemistry is the development of new pharmaceutical agents, right from concept to clinical use. This field has seen enormous growth recently both in Australia, and globally. Medicinal Chemists study the design and synthesis of new drug candidates, their biochemical effects and tailor the use of drugs to optimise efficiency. Academics and students will share their passion for the research that can change the world. And hear from an employer of chemistry graduates about careers industry. See afternoon talks to hear about Nanoscience and more Chemistry.

Science meets industry

10:10-10:40am
Science Theatre [F13]

Our science degrees equip you with the skills for real world challenges and future opportunities. With our award-winning researchers and high profile industry partners, we will inspire you to achieve your goals and enjoy a fulfilling career. Come speak to our industry partners to find out the endless opportunities a science degree can offer.
A changing world: Exploring the GeoSciences at UNSW

10:50-11:20am
Science Theatre
[F13]

Our modern world relies upon mining industries to provide us with the resources to run our homes and economies. Geologists tell us where minerals might be found or help unravel the mysteries of life on earth over three billion years ago. We also rely upon earth scientists to warn us about natural hazards such as earthquakes and tsunami or human impacts on groundwater. Geographers help us to understand how we can use our soils more productively or the behaviour of rip systems on beaches and how we can prevent people from drowning. Come and learn how research into all these areas of geoscience affects your daily life and offers rewarding careers for the right students.

A/Prof David Cohen

Materials Science: The innovative materials for our changing world

10:50-11:20am
Chemical Sciences
M17 [F10]

UNSW Materials Science and Engineering offers unlimited possibilities for product innovation and development using key skills in maths, physics, chemistry and even biology to form a research intensive, yet highly practical engineering discipline. Everything we make and use in the world around us uses some kind of material - we aim to discover and research the properties of materials in order to improve them or apply them in an engineering context to large scale projects. As a materials engineer, you could be involved in developing environmentally friendly and economical metals, advanced surface coatings, biomedical implants, advanced composites and much more. You will learn the necessary skills and gain industry connections so that you can go out and become the next world changer.

Prof Nagarajan Valanoor

HSC Maths Tips and Tricks

10:50-11:20am
Mat A [D23]

Join the UNSW Mathematics Society for a Tips and Tricks session for Extension 2 Mathematics students. Breeze through your exams with insight into simple university maths like L'Hopital's Rule, Advanced Combinatorics, Integration by Inspiration and the Heaviside Method. Plus, hear General Exam Tips and Calculator Tricks from university students who have seen it all!
Medical Science: The pathway to medical careers

10:50-11:20am  
Clancy Auditorium [C24]

Unprecedented advances in knowledge and technology now enable us to tackle some of the most exciting questions about human life. We are investigating what causes aging and whether it can be stopped, how to make nanoscale devices to study how a cell reacts to its physical environment, and what links stress and diabetes. Come and hear how medical science can lead to rewarding careers in medicine and research.

Dr Angela Finch

Physics: From Particles to Planets

10:50-11:20am  
Chemical Sciences M18 [F10]

Physics involves understanding the fundamental nature of the world around us, the principles that govern everything from subatomic particles to the universe itself. The technologies that we now all take for granted - medical scanners, mobile phones, GPS and the internet - have grown out of yesterday’s fundamental physics research. You cannot even imagine where tomorrow’s physics research might take us. Our Physics School specialises in experimental and theoretical physics in astrophysics, biophysics, quantum and solid state physics. Our research facilities include specialist observatories in Australia and Antarctica, a research centre investigating how to build a quantum computer, and an acoustics laboratory to analyse virtuoso musicians and instruments.

Prof Sven Rogge

Biomolecular Science: Change is in your genes

11:30am-12pm  
Chemical Sciences M18 [F10]

Biomolecular Science can make a real difference to the world. It encompasses the disciplines of genetics, microbiology, molecular cell biology and biotechnology. By investigating how life functions at the molecular level – including life from some of the most extreme environments on Earth – we develop an understanding of the important processes operating in cells, tissues and, ultimately, whole organisms. Our students help solve real-world challenges working with our distinguished researchers in areas such as cancer, obesity, infectious diseases and immunology, drug discovery and delivery, renewable fuels and climate change.

A/Prof Louise Lutze-Mann and Dr Anne Galea
Psychology: Changing the world from the inside out
11:30am-12pm
Science Theatre
[F13]

Psychology at UNSW is forging new frontiers in the science of the mind. UNSW Psychology is at the forefront of research in the fields of clinical, forensic and social psychology, cognition and perception. Find out more about the exciting research taking place at UNSW and how we’re making a difference from the inside out!

Dr Angela Nickerson

UNSW Sciences Bridging Courses
11:30am-12pm
Chemical Sciences
M17 [F10]

UNSW Science Bridging Courses offer you the opportunity to revise Chemistry, Mathematics and Physics and experience how these subjects are taught at university. Each course consists of 40 hours of tuition consisting of lectures, tutorials, laboratory classes and/or demonstration sessions.

Dr Gavin Edwards

UNSW Science: Breadth of choice, depth of knowledge (Faculty lecture)
12:10-12:40pm
Science Theatre
[F13]

Science encompasses a wide range of fields and suits an equally wide range of people. You should think about studying science if you:
• Have a curious mind;
• Would like to help advance our society;
• Are enjoying high school Maths and Science subjects;
• Hope to pursue a fulfilling career with wide variety of sectors;
• Are an all-rounder who is keen to further develop life skills like leadership and teamwork.

We’ve got flexible degrees so you can explore your passion for science through a number of specialisations. You don’t have to decide on your ‘major’ until second year, so there’s plenty of time to make the right choice. We are a broad, all-encompassing Science Faculty consisting of nine very different Schools: Aviation, Biological, Earth and Environmental Sciences, Biotechnology and Biomolecular Sciences, Chemistry, Materials Science and Engineering, Mathematics and Statistics, Optometry and Vision Science, Physics and Psychology.

Dr Gavin Edwards
Chemistry and Nanoscience: Discoveries improving knowledge, health and society

12:50-1:20pm
Chemical Sciences
M18 [F10]

Chemistry is a central science dealing with the design, synthesis, analysis and properties of molecules. As a basic science, it is unique in providing opportunities for creativity. Nanoscience is the research, technology, engineering and manufacture of materials that are just a fraction of the size of a red blood cell. It can involve individual atoms and molecules, to thousands of them together, to create devices and materials with unique properties. Academics and students will share their passion for the research that can change the world. And hear from an employer of chemistry graduates about careers industry.

Materials Science: The innovative materials for our changing world

12:50-1:20pm
Chemical Sciences
M17 [F10]

UNSW Materials Science and Engineering offers unlimited possibilities for product innovation and development using key skills in maths, physics, chemistry and even biology to form a research intensive, yet highly practical engineering discipline. Everything we make and use in the world around us uses some kind of material - we aim to discover and research the properties of materials in order to improve them or apply them in an engineering context to large scale projects. As a materials engineer, you could be involved in developing environmentally friendly and economical metals, advanced surface coatings, biomedical implants, advanced composites and much more. You will learn the necessary skills and gain industry connections so that you can go out and become the next world changer.

Prof Scott Kable, Dr Alex Donald, Parisa S. Khiabani and Alexandra Tingey, with Tania Notaras (Envirolab Group)

Prof Nagarajan Valanoor
A voyage of discovery: Journeys into Marine Science at UNSW

12:50-1:20pm
Science Theatre [F13]

Most Australians live within a few kilometres of the ocean and appreciate the importance of sustainably managing our marine resources and preserving coastal environments. Marine scientists from UNSW are world leaders in understanding the behaviour of marine ecosystems and the impact of human activities on our coasts and oceans. Come and find out about the diverse range of research being completed including leopard seals in Antarctica, restoration of Sydney’s underwater forests and the use of artificial reefs for fish production. Opportunities for students will be outlined.

AvProf Tracey Rogers

Data Science: The job of the 21st century

1:30-2pm
Chemical Sciences M17 [F10]

Welcome to the world of big data! The world is experiencing an explosion in data, and the growing need for people who can interpret it means that data scientists are in very high demand across a range of industries. Harness yourself with the skills to meet this soaring demand with our new program, Bachelor of Data Science and Decisions.

Prof Bruce Henry, Head of School

Aviation: Soar into an industry of challenge and opportunity

1:30-2pm
Chemical Sciences M18 [F10]

The Aviation industry is a global and economically important industry that brings people together, and expands horizons. From the technically challenging cockpit with awe-inspiring views, to the operational, logistical and financial management of airports and airlines with a range of security and safety challenges, studying aviation gives you the opportunity to influence the way people experience travel domestically and internationally. Find out how alumni and researchers are doing this and why UNSW Aviation is uniquely placed to train you for this exciting industry.

Prof Jason Middleton & Dr David Tan
Evolution, ecology and the environment: studies of life in the biological sciences at UNSW

1:30-2pm  
Science Theatre  
[F13]

Biology is the science of life. Biologists at UNSW are conducting world changing research into all aspects of biology including the evolution of life, predator prey relationships, and sex and mating. All forms of life are considered from extinct megafauna and early hominids to rare insects and exotic species of plants. Come and learn how this research has helped to improve our understanding of life on Earth, how it has changed through time and the threats it faces in the modern world. Future students of biology will find there is a niche for them at UNSW within a diverse selection of fields of study including ecology, marine biology, zoology and botany.

Prof Mike Archer

Medical Science: The pathway to medical careers

1:30-2pm  
Clancy Auditorium  
[C24]

Unprecedented advances in knowledge and technology now enable us to tackle some of the most exciting questions about human life. We are investigating what causes aging and whether it can be stopped, how to make nanoscale devices to study how a cell reacts to its physical environment, and what links stress and diabetes. Come and hear how medical science can lead to rewarding careers in medicine and research.

Dr Richard Vickery

Biomolecular Science: Change is in your genes

2:10-2:40pm  
Chemical Sciences  
M18 [F10]

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A/Prof Louise Lutze-Mann and Dr Anne Galea
**Science Talks**

**HSC Maths Tips and Tricks**

2:10-2:40pm
Mat B [D23]

Join the UNSW Mathematics Society for a Tips and Tricks session for Extension 2 Mathematics students. Breeze through your exams with insight into simple university maths like L'Hopital's Rule, Advanced Combinatorics, Integration by Inspiration and the Heaviside Method. Plus, hear General Exam Tips and Calculator Tricks from university students who have seen it all!

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**Science Solutions for a Planet under Pressure: Environmental Management at UNSW**

2:50-3:20pm
Chemical Sciences M17 [F10]

Sustainable environmental management is key to the future of our planet. The School of Biological, Earth and Environmental Sciences is one of the largest environmental science departments in Australia with award winning researchers investigating how we can manage the environment at a variety of scales and using a range of cutting edge technologies. Examples include the restoration of wetlands, re-introduction of native species or understanding pests and fire. The knowledge gained from this research contributes to an legacy for future generations and equips UNSW graduates with the skills and ability to find the answers to a sustainable existence.
The Optometry/Science degree provides students with an understanding of the theoretical discipline of vision science and the clinical art of primary eye care. Vision science covers topics such as optics of lenses and instruments, the physiology of the eye, the psychophysics of vision and the neuroscience of the brain. Optometry includes the diagnosis and management of ocular disease, the dispensing of spectacles and contact lenses, the management of people with special needs (children, low vision), sports vision and vision in the workplace. The School of Optometry and Vision Science at UNSW is the largest optometry school in Australia that links its academic learning with clinical practice. It has a modern clinic providing a full range of optometry services. The School also houses a number of outstanding research units including the Optics and Radiometry Laboratory, and sits alongside the Brien Holden Vision Institute.

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Learn
Explore
Discover