

Learning Labs Workshops

JANUARY 2018



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

Outreach & Pathways

YEARS 7 & 8 WORKSHOPS

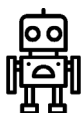


Convince Me!

Presenter: Matthew Rhodes

Do you want to win more arguments? From prosecuting a legal case to negotiating a better salary, debating skills are useful for anyone's future.

In this two-day workshop you will learn about how to persuade an audience, and to speak with confidence. Team up with new friends and battle over exciting topics to see if you can win over an adjudicator. You will also get the opportunity to play the role of judge as you try to decide who has the most convincing arguments.

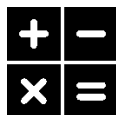


Industrial Robotics

Presenter: Nathan Larkin

Industrial robots are used extensively in manufacturing worldwide. From packing biscuits to welding trucks, a robot is often used as a flexible and efficient automation device.

In this workshop students will interact with typical industrial robots, learning how they work and how to program them. Using these skills students will create robot programs to accomplish some fun and practical tasks.

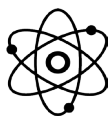


Mathematic Investigations

Presenter: Nilesh Kumar

In this exciting hands-on session, you will work on your problem solving skills, reasoning and functionality. You will be working both independently and as part of a small team in the art of mathematical modelling. You will be involved in spotting patterns, formulate and test your ideas.

This workshop is designed to improve your mathematical communication and critical skills. There will be room for extension and enrichment via utilizing your higher-order thinking skills. There will be time for reflection and your facilitator will guide you. So see you there on the day with your scientific calculator!



Mythbusting Physics

Presenters: School of Physics (UOW EIS)

Are you interested in what physics is and how it influences our everyday life? Have you seen things in movies that you suspect are impossible?

Starting with some movie clips, this workshop will look at common misconceptions and physical impossibilities, before getting to grips with the real physics. You will carry out experiments and take part in demonstrations, learn fundamental physics concepts, and work out what the movies ought to have shown.

This very hands-on workshop will focus on two key areas of physics - mechanics and waves. It will help you begin an exciting journey developing the tools necessary to debunk common myths in our society today.



Digging up the Past

Presenter: Courtney Mitchell

The past isn't gone: it's traces are all around us. If this peaks your interest, this workshop is for you!

Source analysis, teamwork and practical archaeological skills are the basis of this workshop. Encounter ancient artefacts and participate in a mock excavation. Over two days you'll become a competent amateur archaeologist who is able to offer amazing insights into ancient civilisations.



Intro to Virtual Reality Development

Presenters: 'Devika'

Virtual Reality is a booming high tech industry for 'human computer interfacing'. We now have the ability to create worlds of our imagination and transport ourselves and others into them. This technology can potentially apply to any and every industry, and reshape how we work.

In this workshop we will be using Unity to create a virtual world of the students design and allow them to take their first step into using this technology. Students will enhance their skills and to learn vital skills of working as a team, coding, level design and much more. By the end of this workshop you will have a good understanding of how VR is relevant today, the basics of Unity and how to build a VR project using the skills you just learnt.

Devika is a collaboration of technology start-ups with global and social ambitions. <https://devika.com.au/>.



Momentum Mathematics

Presenter: Liza Booth

Learn the secrets of SPEED MATHEMATICS.

You will amaze yourself, family and friends when you discover the world of mentally multiplying very large numbers faster than you could tap the digits into a calculator. You will learn to recognise patterns and increase your speed and accuracy.

The Momentum Maths workshop will promote your confidence, offer you a real understanding of numbers, increase your mental agility & intelligence and most importantly, sharpen your mind!

Bring your calculator along to CHECK your calculations but NOT to actually DO your calculations.

YEARS 9 & 10 WORKSHOPS



Intro to Virtual Reality Development

Presenters: 'Devika'

Virtual Reality is a booming high tech industry for 'human computer interfacing'. Although still at its infancy, we are about to see perhaps the biggest tech evolution since television. We now have the ability to create worlds of our imagination and transport ourselves and others into them. Imagine literally looking through the eyes of someone else.

In this workshop we will be using Unity to create a virtual world of the students design and allow you to take your first step into using this technology. Students will work individually and collaboratively to enhance their skills and to learn vital skills of working as a team, coding, level design and much more.



Ocean Engineering

Presenter: Ashley Heath (UOW EIS)

Do you like designing and building? Do like being around water or the ocean? Well this workshop is for you.

In this workshop you'll be working in small groups to designing and build from scratch a remote controlled sailing vessel to carry cargo in a simulated ocean generated by the Universities wave maker. This is an important mission, seeing as 90% of all container goods are moved by ship. But don't worry, we will give you the engineering skills needed to design a sturdy vessel.

In this lab you will learn about the engineering method, hydrodynamics, hydrofoils, structural resonance, balancing forces and torques, wave dynamics and the ocean environments. And naturally you will also have a lot of fun.

YEARS 7-10 WORKSHOPS



3D Printing & CAD Modelling

Presenters: Ben & Heike Roberts, Modfab Pty

3D printing is one of the fastest growing technologies in the world. Have you ever dreamed up an idea or product but not known how to make it real? Participants in this workshop can begin their journey towards becoming designers, makers and entrepreneurs.

After this hands-on workshop you will be aware of how to:

- Operate a generic FDM (fused deposition modelling) 3D printer
- Prepare models to print with slicing software
- Learn how to troubleshoot your prints
- Bring your own designs to life using free CAD software
- Engage in project based learning and use critical thinking skills
- Create your own name tag, and design & 3D print a solution to a problem!
- Create your own 3D Printed Tic Tac Dispenser.

This workshop will be held on the 16 & 17 January, 2018, due to room availability.



Creative Writing for Beginners & Beyond

Presenter: Timothy Daly

The basis of a powerful contemporary writing style lies in using language in a fresh and innovative way. This practical, hands-on workshop gives you dozens of techniques to use, regardless of the medium you're most interested in. Special attention is given to short story, short film, poetry and theatre writing.

Led by one of Australia's most experienced teachers of writing, the multi-award-winning playwright Timothy Daly, this workshop is suited to both smart beginners and committed writers.



History- Weird, Wild Conspiracies

Presenter: Stephen Brown (UOW LHA)

This Learning Lab will look at some of the most famous conspiracies such as the assassination of JFK/the death of Marilyn Monroe and ask some important questions:

How and why have so-called 'conspiracies' emerged? Why do they persist?

And given that there is much evidence to dismiss some conspiracies, why do many people accept 'conspiracies' or weird and wild histories as fact?



An Introduction to Writing Short Stories

Presenter: Stephanie McVey

Do you love reading and writing stories? Not quite sure of the difference between a short story and a novel? If you answered "Yes" to either of these questions, this workshop is for you!

In this workshop we will begin by briefly examining what a short story is, before starting the fun of creating a short story. We will go through the process of planning, writing and editing, as well as enjoying some writing challenges that unlock creativity! You may not finish a short story but you will have the opportunity to plan and write segments of lots of short stories.

If you enjoy writing, this practical workshop will provide you with the fundamental knowledge and techniques to explore the world of being a short story author.



Forensic Art & Facial Reconstruction

Presenter: Meagan Powley

This workshop is an intensive introductory experience in creating a 3D facial reconstruction. Working in pairs you will use clay to model the individual muscles, glands, fat and skin over a unique human replica skull, all the while learning about the methods used in archaeological and forensic facial reconstructions.

Meagan is a Research Associate collaborating with Dr Susan Hayes, UOW's facial anthropologist, in the area of facial approximation. After this workshop you will never look at a person's face the same way again!



Introduction to Building Video Games

Presenter: Alexander Kelly (UOW EIS)

Video games have become one of the most popular forms of entertainment across the globe.

A flexible medium, Video Games allows the player to experience things that would not be possible in any other medium. But have you ever wondered how video games are built, and what goes into building one?

The "Introduction to Building Video Games" workshop is a crash-course introduction into the world of game construction. In this workshop, you will learn about how video games are produced, by constructing your own game! Learn to draw your own game art, create your own special effects, and of course tie it all together with some programming!



Let's Get Physical

Presenter: Michael Macartney (UOW SMAH)

If you are interested in the field of sport science and/or medicine then this a great introduction for you. In this workshop we will explore the nervous, skeletal, muscular, cardiovascular, and respiratory systems and examine the integration of these systems in human movement and exercise.

The workshop will cover basic theoretical knowledge of anatomy, physiology and biomechanics and apply it to exercise. Within the work shop students will be exposed to the anatomy laboratory and learn how to identify specific anatomical structures including bones, muscles and nerves that are responsible for generating movement.

Students will also be exposed to the physiological measurements such as muscle activity, heart rate and force produced and how these measurements can be used to quantify physical performance. The bio mechanical principles of levers and torque will be introduced in a way that can explain how movement is possible.



Painting, Collage & Sculpture

Presenter: Supriya Eliezer

In this session participants will enjoy learning a wide range of artmaking skills including, drawing, painting, collage and printmaking.

Participants will have fun and experiment with different mediums including, pencil, oil pastels and acrylics. This class is a fun mix of basic theory with practical painting and /or sculpture with reference to some famous artist and artworks and techniques.

Participants will be able to take their creative work home at the end of workshop.



The Power of Imagination

Presenter: Jackson Davis (UOW LHA)

This practical workshop introduces you to the imagination of the theatrical space.

As performers you will begin building those elements key to sustaining yourselves as creative artists: an awareness of the body, engaging with theatrical texts and an appreciation of actively working in an ensemble.

Over the two days you'll be working practically with a series of exercises, games and theatre texts all catered to kick start and maintain your investigation of performance and the theatre medium.



Music Technology & Composition

Presenter: Faughn Dybell

In this two day workshop, students learn about the history and development of technology in Music and then compose their own composition using modern technology.

Learn recording techniques, including- sampling, backmasking, backwards messaging and musique concrete (using environmental sounds in composition). Experiment with various composition techniques and create a unique and interesting piece of music and develop an appreciation for the unity and contrast needed to compose an interesting listening experience.

This workshop will challenge your perception and understanding of what makes music 'music'. Feel free to bring along an instrument, however, musical knowledge and skill are not required as long as you have an interest in music. We will be working in a music lab with keyboards.

Please bring your own headphones and a USB stick.



The Body in Motion: Biomechanics

Presenter: Diane Harland

Learning by doing. During this workshop, participants will be involved in a number of practical activities. We will apply the concepts of mechanics to understand human movement and some of the different ways to measure human movement. We will investigate the who, what, why and how of physical performance.

The concepts explored will include: balance and stability, laws of motion, friction, rebound, swimming and floating, projecting objects, walking and running and a variety of sports skills analysis.

Participants will also be challenged to consider complications that may threaten efficient motion, how to identify these and how they happen.

Please bring along some swimmers and a towel if you are keen to jump into the campus pool for an experiment (this is NOT a mandatory requirement of this workshop).

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