Griffith UNIVERSITY
Queensland, Australia

Year 10 STEM Futures Day

Friday 8 November 2019
Gold Coast campus

In the next decade, 75 per cent of all jobs will need skills in science, technology, engineering and mathematics (STEM).

This doesn't mean that everyone will become a scientist, technologist, engineer or mathematician. However, STEM skills are proving more and more useful for almost every career. As Australia's Chief Scientist, Dr Alan Finkel, says "STEM skills are also needed for traditionally non-STEM jobs".

STEM skills are utilised in positions around the globe within large and small businesses to help manage daily tasks effectively. Whether you enrol to become a neuroscientist or an electrician, studying STEM provides both the technical and problem-solving skillset required to excel.

Students in year 10 are invited to participate in Griffith University's STEM Futures Day. This day will give you the opportunity to select two hands-on STEM workshops, helping you discover where your passions lie.

When: Friday 8 November 2019
Where: Griffith University Gold Coast campus
Time: 9 am – 2.15 pm
Cost: Free, lunch included

How to register

Students: Nominate one session in the morning and one session in the afternoon from the list below.

Teachers: Collate student forms and register final attendance numbers at **griffith.edu.au/stem-futures-day**

Confirmation of sessions will be sent to schools in an email. Workshop numbers are capped and will be closed as they are filled - students may have to attend an alternative workshop if their nominated session is full. Schools will be notified of this in the confirmation email.

Your name: _____ School: _____ Teacher name: _____

ACTIVITY DESCRIPTION	MORNING SESSION	AFTERNOON SESSION
Analytical chemistry: Qualitative analysis of sunscreens *Mr Ryan Stewart* In this activity, you are asked to provide or select from a range of different sunscreen/zinc products to compare their relative effectiveness at blocking harmful UV radiation. You will extract and isolate the active compound from the product using a solvent and centrifuge/micro filter, then using UV-Vis Spectrophotometers, determine the specific wavelength spectrum that the original product protects us from. *Like this activity? You may find the Bachelor of Science (Chemistry) interesting.*	☐	☐
Mammalian skull analysis *Professor Darryl Jones* What can you learn from an animal skull? You will compare and contrast several animal skulls to learn about the animal's evolution and map different stages in animal diversity. The skull and teeth can tell us a lot about the animal's physical and behavioural characteristics. Looking at the teeth can help determine what types of food the animal would typically eat which can help us make predictions about a variety of animal traits. *Like this activity? You may find the Bachelor of Science or Bachelor Environmental Science interesting.*	☐	☐
A totally sweet research experience *Glycomics experts* At the Institute for Glycomics you will: • learn about Glycomics, the sweet and sticky language of biology. • hear from leading scientists, about their ground-breaking research and exciting opportunities available in a biomedical research career. • learn how medical research plays such a vital role in our everyday lives. • have the opportunity to experience hands-on research. • be involved in a Q&A with students and researchers. *Like this activity? You may find the Bachelor of Science or Bachelor of Biomedical Science interesting.*	☐	**No afternoon session**
Rare and endangered plant walk *PhD students* Hear from our expert in environmental science before going on a campus tour. Griffith is home to some of the rarest native plants in South-East Queensland and on this walk, you will identify and discover this unique range of plants on-campus. You will learn about what is threatening these rare and endangered plants into extinction and ways in which we can help. *Like this activity? You may find the Bachelor of Environmental Science (Ecology and Conservation) interesting.*	☐	☐
Build your own electronics devices *Dr Stephen So* Learn how to operate a simple analogue circuit and have fun building your own electronic device. Assemble an electronic dice that can be "rolled" by clicking a button. *Like this activity? You may find the Bachelor of Engineering (Electrical and Electronic Engineering) interesting.*	☐	☐

ACTIVITY DESCRIPTION	MORNING SESSION	AFTERNOON SESSION
LEGO building activity *Dr Sherif Mostafa* In teams, you will be challenged to build a self-standing tower with a maximum benefit value within 90 minutes using different types of building bricks provided. On completion, the towers will be measured and benefit value calculated based on the number of LEGO bricks used and design concepts applied. *Like this activity? You may find the Bachelor of Construction Management interesting.*	☐	☐
Strongest tower challenge *Dr Hassan Karampour* You will explore the engineering design concept by building the strongest tower from given materials to a specific height in the time allocated. The towers are then tested on their ability to support the weight. *Like this activity? You may find the Bachelor of Engineering (Civil Engineering) interesting.*	☐	☐
Advanced design and prototyping in industrial design *Dr Nick Emerson* You will join us in Griffith's Advanced Design and Prototyping Technologies Institute to see how industrial designers use advanced technology to shape the modern world. You'll engage in hands-on computational design and laser scanning in the heart of Griffith's flagship design suite. *Like this activity? You may find the Bachelor of Industrial Design interesting.*	☐	**No afternoon session**
Build an autonomous chat box *Dr Henry Nguyen* Have you ever received an automatic response to your queries on Facebook messenger? In this workshop, you will create a similar version of chat box/messenger you interact with on other platforms and code creative instructions to receive an automated response. *Like this activity? You may find the Bachelor of Computer Science interesting.*	☐	**No afternoon session**
Try architecture on for size (Virtual Reality and 3D printing) *Dr Ruwan Fernando* Use a 3D laser scanner to create a virtual model of buildings on the campus. In this hands-on workshop, you'll take a tour through our architecture studios and work with our architecture tools. *Like this activity? You may find the Bachelor of Architectural Design interesting.*	**No morning session**	☐
Build a SUMO robot *Associate Professor Jun Jo* In this workshop, you will build and program sumo robots, which are controlled by a smartphone. When the robots are competed, you'll play a sumo robot game using your robots. At the end of the workshop, you will discuss your future careers and the related degree programs at the Griffith school of ICT. *Like this activity? You may find the Bachelor of Intelligent Digital Technologies interesting.*	**No morning session**	☐