Students show creative flair in photo competition

A hungry lemur pleading for peas was the winning photo in this year’s University of Waikato Work Placement Photo Competition.

The competition was run by the Cooperative Education Unit, who organise paid work placements for students studying towards either a Bachelor of Science (Technology) or Bachelor of Engineering. Entries came from students who had recently completed their work experience.

The winning photo was taken by former Te Aroha College student Gina Heron who enjoyed a work placement at Hamilton Zoo. Gina is a fourth-year BSc(Tech) student, majoring in Biological Sciences.

Second place was an entry from second-year student Sarah Appleby, who came to Waikato from Whangamata Area School. Sarah learnt glass sculpture skills during her work placement with Reproductive Technologies at AgResearch.

Visit www.sci.waikato.ac.nz/study/work-placements to find out more about work placement opportunities at Waikato University.

Engineering design challenges first-year students

Twenty three teams of eight University of Waikato engineering students took to the campus lake recently as part of the annual University of Waikato Engineering Design Challenge.

Each year the boat building project is held for all first-year engineering students. Students test their designs in a series of elimination races across the campus lake. The fan-propelled boats complete races around a course which tests their manoeuvrability and whether they could last the day.

The boats are built with specific budget, time, material and design constraints. Team Mexico was in the second heat of the day and managed to win despite having steering issues which sent them astray at the beginning of the race.

Visit www.sci.waikato.ac.nz/study/work-placements to find out more about work placement opportunities at Waikato University.
Former Fairfield College student Stefan Smith graduated with a Bachelor of Science (Technology) (BSc(Tech)) in chemistry and materials & processing. He’s now working as a Carbon Capture Chemist in Wales, at Aberthaw Power Station.

Stefan got his foot in the door at Aberthaw Power Station through a 12-month work placement that was a compulsory component of this BSc(Tech). He says that his degree gave him the academic and industrial experience he needed to be able to move into this exciting field of research directly from his work placement and was invaluable in giving him contacts within the industry.

Throughout the paid placement Stefan thrived on the challenge of developing the company’s knowledge of carbon capture chemistry and was subsequently offered a full-time job which has given him increased responsibility and the chance to travel to Germany and Canada.

“Carbon capture and sequestration (CCS) is the technology used to prevent the release of large quantities of CO2 into the atmosphere from fossil fuel use in power generation and other industries. The process involves capturing CO2, transporting it and ultimately, pumping it into underground geologic formations to securely store it away from the atmosphere,” says Stefan.

RWE npower, in partnership with Canadian gas absorption company Cansolv Technologies, has invested in a carbon capture and release pilot plant, which will be operated for a two year trial. The plant will research carbon dioxide capture and release processes using a proprietary amine solvent, with the focus on its application to coal-fired power stations and improving the technology’s process and environmental performance.

“Recently I’ve been developing and validating analytical methods and preparing the current laboratory for the upcoming carbon capture plant (CCP). Once the plant is in operation, I’ll be responsible for analysing samples, supervising other analytical chemists assigned to the project and advising the plant’s operators on CCP chemistry.”

Visit www.sci.waikato.ac.nz/about-us/chemistry to discover the opportunities available at Waikato University.

A University of Waikato graduate is undertaking industry research of carbon capture technology, a technique which can prevent the release of large quantities of CO2 into the atmosphere from major emission sources such as power stations.

Open days attract budding scientists and engineers

Science Open Day: Almost 100 secondary school students from throughout the North Island took turns experimenting with liquid nitrogen in the Chemistry laboratories at the University of Waikato.

Building and racing small electric cars and experimenting with liquid nitrogen were the top ranked activities by secondary school students at the University of Waikato’s Science and Engineering Open Days last month.

During each of the days, which were held as separate events, Year 11-13 students and their parents moved between sessions learning about the subjects offered by the Faculty of Science & Engineering. The selection of workshops gave potential tertiary students a taste of the fun and varied subjects available to study during a Bachelor of Science, Bachelor of Science(Technology) and Bachelor of Engineering.

Science Open Day

Students raced against the clock to lay out the bones of a rabbit skeleton in biological sciences; explored the real-time monitoring of global earthquakes and volcanoes in earth and ocean sciences; experimented with liquid nitrogen in chemistry and measured gravity in physics.

Engineering Open Day

Enjoyable workshops included creating and racing small electric cars in mechanical engineering, using chocolate to test how reinforcing makes materials stronger in materials and process engineering; and creating a strategy to separate different sized lollies using methods such as gravity and air filtration in chemical and biological engineering.

Other interactive workshops included developing an iPad or iPhone game in software engineering and using electronics to make wooden mouse traps more reliable in electronic engineering.

Positive feedback

“Feedback from both events was extremely positive and it was great to see so many students excited about science and engineering and getting the most out of the opportunity to talk one-on-one with our staff and current students,” says Faculty of Science and Engineering Dean Professor Bruce Clarkson.

Visit www.sci.waikato.ac.nz/scienceopenday or www.sci.waikato.ac.nz/engopenday for more photos from the days.
Waikato student recruits classmates for start-up technology company

A University of Waikato student entrepreneur has taken the seed of an idea and created a technology company which he hopes will become his day job.

Last year Bachelor of E-Commerce student Brian Cole decided to take both core first-year computing papers as part of his e-commerce degree.

“My strength is in management, but I thought ‘This is the skillset I need; let’s go and find people who excel in this area as well as gain programming skills’,“ says Brian.

Brian got talking to his fellow students about breaking into the highly competitive computer games industry, and they decided to put together a company to give themselves experience and material for their portfolios.

Cold Studios, of which Brian is the director, now employs three programmers and two graphic designers – all Waikato students. Brian says they expect to be able to pay themselves a living wage by the third year of operation, but in the meantime he’s working hard at leveraging course credits for some of the work the company does.

“We’re currently operating from the Faculty of Computing & Mathematical Sciences (FCMS) usability labs in G Block at the University. I’ve been blown away by how supportive the University has been, but particularly FCMS who have provided invaluable material support and mentorship.”

Cold Studios recently gained media attention with an iPad game which was featured by the University of Waikato at Fieldays 2012. The game used Waikato University’s graduation mascot, Mū the Friesian cow in a game which challenges players to keep Mū’s milk production up.

Cold Studios is also working on its own IP, a space shooter game, an internet radio streaming app for a specified music genre, and an app which allows users to create their own sound files for ringtones, for example.

Visit [www.scms.waikato.ac.nz](http://www.scms.waikato.ac.nz) to find out more about studying with the Faculty of Computing & Mathematical Sciences.

Science Summer School 2012- applications now open

Applications are open for the Hill Laboratories Waikato Science Summer School.

The Summer School is open to Year 12 students within Rotary District 9930, who have an interest in science, and who will be going on to study Year 13.

The focus for the Summer School will be on the Waikato River and will include an overnight field trip to Turangi, allowing students to collect samples and experience real-life science and engineering. The remainder of the week will be spent in Waikato University’s science and engineering labs, analysing samples and experimenting with the university’s state-of-the-art equipment.

During the week students will enjoy accommodation in a University Hall of Residence. Each evening activities are organised including a quiz night, ten pin bowling, a meet and greet with past and present Waikato students, and a formal celebration dinner on the final night.

Applications must be lodged through your local Rotary Club. Participants will be chosen based on high academic achievement (particularly in science and mathematics), intention to pursue science as a career, a well rounded personality, a good attitude and work habits, and wide community interests.

Application forms and Rotary contact details have been sent to secondary school science teachers in Rotary District 9930. Applications close 31 August 2012. Details are also available at [www.sci.waikato.ac.nz/sciencesummerschool](http://www.sci.waikato.ac.nz/sciencesummerschool)
What's on

24 OCTOBER
ChemQuest
Every year the Department of Chemistry offers Year 12 students from local secondary schools the opportunity to compete for the ChemQuest trophy and other prizes. Visit www.sci.waikato.ac.nz/chemquest

24-25 OCTOBER
Carter Holt Harvey Pulp & Paper Engineering Design Show
Join the School of Engineering’s second, third and fourth-year students as they showcase their research projects in the form of posters, displays and seminars. The Design Show is open to the public and is the perfect opportunity for secondary school students to meet talented engineering students. Visit www.sci.waikato.ac.nz/engineeringdesignshow

2-7 DECEMBER
Hill Laboratories Waikato Science Summer School
See article on page 3 for more information. Visit www.sci.waikato.ac.nz/sciencesummerschool

Scholarships

School Leaver Scholarships
- The Vice Chancellor’s Academic Excellence School Leaver Scholarship
- The University of Waikato Academic Merit School Leaver Scholarship
- Science Admission Fees Scholarships
- Bachelor of Engineering Fees Scholarships
- IPENZ Waikato/Bay of Plenty Branch Scholarship
- Brian Perry Charitable Trust Undergraduate Scholarship

Undergraduate Scholarships
- Hamilton Zoo - Science & Engineering Studentship
- Fisher and Paykel Healthcare Scholarship in Physics

For further details and a full list of scholarships visit www.sci.waikato.ac.nz/study/scholarships

Hands-on science and engineering

Waikato Experience Biology (WEB) Days: Over 750 Year 13 students got a taste of biology at the WEB Days. Above, Hamilton Girls’ High School students Rachael Saunders and Kaitlyn Neverman (L to R) collect DNA that they have extracted from kiwifruit during a laboratory session at the event.

Osborne Physics and Engineering (OsPEn) Days: Miniature vehicles built from scratch had a crowd of local secondary school students oohing and ahhing with anticipation at the OsPEn Days. Tuakau College students (L to R) Andrew Hunkin, Scott Whitney, LiMing Teo and Aaron Crisp were the standout winners of the Capacitor Car Competition, with a distance almost double that of the second place getters.

NZIC Analytical Chemistry Competition: Accurate analysis of samples in the chemistry labs secured a win for four talented Year 13 students from Pukekohe High School. The team (L to R) Aaron Boot, Jack Dyche, Tejal Acharya and Zaak Wijdeven, received first place at the annual NZIC Analytical Chemistry Competition. Forest View High School were awarded second place, third place went to Katikati College, fourth place to Te Awamutu College and fifth to Tauranga Boys’ College.