Human evolution and DNA hot topics at Waikato biology days

Human evolution and DNA were just two of the exciting topics covered at the annual University of Waikato WEB (Waikato Experience Biology) Days from 7-8 June, which attracted over 650 Year 13 secondary school students.

The majority of students were from the Waikato and Bay of Plenty, yet attendees also travelled from as far afield as Gisborne, New Plymouth and Maungaturoto.

Schools were invited to register their students for the laboratory sessions and lectures which covered topics relevant to the Year 13 curriculum. Laboratory sessions covered DNA techniques in which students were given the hands-on task of DNA extraction, while lectures covered gene expression, DNA technologies, plants and animals, the skulls of early human ancestors and the processes of evolution.

In the lab: Lytton High School student Phillipa Edmonds (left) is supervised by Waikato PhD student Emma Littlejohn, as she practices the technique of pipetting solution onto a gel for electrophoresis. The technique is used in research to separate molecules for identification.

Science Summer School - entries open

In December this year another 40 budding young scientists will attend the annual 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 week-long event is packed full of exciting science sample collection and lab work, coupled with fun team building activities and a tour of Hill Laboratories.

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 will be available online and from your science teacher from 1 August 2011. Visit www.sci.waikato.ac.nz/sciencesummerschool for more information.
Bachelor of Science(Hons) graduate Norzahirah Ahmad works as a Research Officer at the Herbal Medicine Research Centre in Malaysia.

Norzahirah completed a Bachelor of Science majoring in biotechnology and a Bachelor of Science(Hons) majoring in materials and processing at Waikato University.

Following her tertiary studies in New Zealand, Norzahirah returned to her home country of Malaysia, where she is now employed as a Research Officer at the Herbal Medicine Research Centre. The centre is part of the Institute for Medical Research (IMR), which is one of the research arms of the Ministry of Health, Malaysia.

“I’m involved in research on local herbs and herb products and evaluating their efficacy and toxicological effects. Much of the work I’m involved in is confidential, which means I can’t go into greater detail,” says Norzahirah.

“The highlight of my job has been meeting people from different fields of expertise and discovering the types of research being done to help improve the wellbeing of Malaysians.”

Norzahirah completed her schooling in Malaysia and received a scholarship from the Malaysian government to complete her tertiary study in New Zealand. She chose Waikato University as her base due to the relaxed campus environment and the proximity of the campus to several large research facilities such as AgResearch and Hill Laboratories.

During her degree she completed a work placement with AgResearch. She also did a small project with Waikato University’s Honey Research Unit and an honours project sponsored by the School of Engineering and ANZCO Foods, a group of companies which procure, process and market New Zealand beef and lamb products.

“These research opportunities allowed me to experience different research environments and familiarise myself with research work. I encountered different equipment and learnt valuable research skills. Although my current research is very different from research I’ve done at Waikato, I can still apply research thinking, writing skills and other soft skills in my daily work.”

Norzahirah also enjoyed the Kiwi way of life. “I loved traveling around New Zealand and made the most of the New Zealand lifestyle; going camping, fishing and horse riding, and enjoying the beach and summer barbecues. I even managed to do the Tongariro Crossing trek!”

Read more Science & Engineering graduate success stories at www.sci.waikato.ac.nz/study/student-profiles

BookieMonster helps kids to read

A team of Waikato University computer science students have come up with an innovative way to use technology to help children learning to read.

The BookieMonster project reached the national finals of the Microsoft Imagine Cup, a global student technology competition. With a focus on finding solutions to real-world issues, the Imagine Cup challenges budding software designers and programmers to tackle some of the world’s toughest problems.

Teams must come up with an innovative and workable solution to a pressing issue. The solutions are generally related to the UN’s Millennium Goals; hunger relief, poverty, education, disease control, healthcare and the environment.

BookieMonster aims to bolster literacy by computerising a proven method for learning to read, dubbed “repeated reading” using computer-generated voices and speech recognition.

Former Hamilton Boys’ High School students Ashley Steel and André Meister, and former Fraser High School student Luke Bjerring form the BookieMonster team.

The group have worked with a curriculum coordinator in Switzerland and primary teachers in New Zealand to develop the software, which steps in as a reading coach – potentially providing more reading support to those who would otherwise miss out due to constrained teaching resources.

“A child using the software listens to a text being read aloud by the computer, following the words as they are progressively highlighted on-screen in time with the voice – just like karaoke. After hearing a text read to them a few times, they then read it back to the computer via a microphone. The software recognises their speech and provides the same progressive text highlighting that they received while being read to,” says Steel.

The students have a working prototype and they’re now setting up trials of the software in local schools.

Ultimately the team hope to see their software distributed via existing computing initiatives, in developing nations where literacy in some places is as low as 50%.
Photo competition highlights lessons learnt during Waikato work experience

Slimy sea slugs, prickly hedgehogs, a 19km hike and happy horses, were the subjects of the four winning photos in Waikato University’s Work Placement Photo Competition.

The competition, which generated more than 30 entries, 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.

The judges were looking for photos that showcased the students’ experiences while on a work placement. Each entry had to fit within one of the following three sections: “I never knew I could…”, “The strangest thing happened to me…” and “The most valuable thing I experienced was….”

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

Water bottle rockets fuel interest in physics

The winning team on the first day of competition was from St John’s College and included Aidan Ratcliffe, Brendan O’Halloran and Shaun Clarkin.

The winning rocket on day two of competition, and overall winner was from Hillcrest High School student Sam van Oosterom, whose creation soared an exciting 130m across the Waikato University field. Second equal was not far behind, at a distance of 120m. The winners of second equal were also both from Hillcrest High School.

School teams were challenged to design and build a water bottle rocket that would travel the greatest distance horizontally, using only a 1.5 litre bottle, plastic and cardboard, a limit of 80psi of pressure, and some imagination.

The bottle rocket competition was part of the OnPEn Lectures, an annual event at the University of Waikato aimed at Year 12 and 13 students who are high achievers in science. Students attend lectures and practical demonstrations that focus on applications of physics and provide examples of how the physics they are learning at school can be used.

Prizes included t-shirts donated by Rocket Lab and vouchers donated by the NZ Institute of Physics.
Waikato Diocesan students win university chemistry challenge

Four talented Year 13 students from Waikato Diocesan School received first place in this year’s Annual Analytical Chemistry Competition, held at the University of Waikato. The winning team was Julia Berney, Rebecca Little, Sarah Wheeler and Joyce Wu (pictured above from left). Pukekohe High School were awarded second place (pictured left below), third place went to Tauranga Boys’ College, fourth place to Fraser High School (pictured right below), and fifth to a second team from Tauranga Boys’ College. The competition challenged over 50 enthusiastic Year 13 students to spend a day in the University’s chemistry laboratories. “The task was to analyse a sample using different techniques, to work out the chemical formula using methods that would be beyond the resources of schools,” says competition judge and key organiser, Professor Brian Nicholson.

Competition prize winners

Science & Engineering Open Day Lab Quiz winners
Congratulations to Josh Wilson from Whangarei Boys’ High School, who was the lucky first prize winner of the Fujifilm Finepix AV150 Splash Pack, including a 14 megapixel digital camera, underwater camera case, 2GB SD card and a Fujifilm case. Jessica Mourits, Culum de Jong, and Fiona Hicks each won a $20 Event Cinema Gift Card.

Science & Engineering Website Launch Quiz winners
The winners of the quiz were: Michael Lee, Remedy Loame, Esther Chan, Sam Crawford and Natasha Forkert. Each winner received a $20 iTunes Gift Card.

What’s on

28 JULY
Science Open Day
Science Open Day is a new event this year which will offer students and their parents the chance to explore the areas of science available to study at Waikato University.

29 JULY
Engineering Open Day
Interested in Engineering? Spend the day on campus with staff and students and experience engineering through hands-on workshops.

6 OCTOBER
ChemQuest
Every year the Chemistry Department offers Year 12 students from local Secondary schools the opportunity to compete for the ChemQuest™ trophy and other prizes. Entrants require a familiarity with Year 12 chemistry and good general knowledge.

18-19 OCTOBER
Carter Holt Harvey Pulp & Paper Engineering Design Show
Join the School of Engineering’s 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 high school students to meet talented engineering students.

4-9 DECEMBER
Hill Laboratories Waikato Science Summer School
The Hill Laboratories Waikato Science Summer School offers Year 12 students a week of summer science fun. Students must apply to their local Rotary Club to be considered for the Summer School. Those who are selected enjoy a fun-packed week of activities, including an overnight field trip to collect samples, laboratory sessions at the University of Waikato, a visit to Hill Laboratories and accommodation and meals at a University of Waikato Hall of Residence. See front page article for more information.

For a full list of events and contact details, visit: www.sci.waikato.waikato.ac.nz/news-events/whats-on

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