Student Employability Project

As graduate numbers increase, higher education institutions across the UK are placing a greater emphasis on ensuring students leave with the skills they need to secure a graduate level job and the University of Leicester is no exception.

The University’s guidelines state that all courses should be structured with transferable skills in mind; skills that employers have told the University they want. The University of Leicester’s Employability Project, a partnership between GENIE and the Students’ Union, aims to understand what staff and students think employability skills are and where they think they are evident in the curriculum. The project uses the same methodology as last year’s Personal Tutor Project (see Edition 3 of Genie News, Autumn 2011) and is a collaborative project between University staff and students. It uses detailed questionnaires, focus groups and interviews with academic staff and students across the University to collect data. This will be then be used to produce a set of guidelines to develop and improve the ways in which employability skills are embedded into the curriculum. Almost 2000 students have participated in the survey to date.
GENIE Strengthens Links with Nara Women’s University in Japan

Recently, Dr Mark Goodwin travelled to Japan as part of GENIE’s work to support the link between the School of Biological Sciences at Nara Women’s University in Japan and the School of Biological Sciences at the University of Leicester. So far, the link – which was started by Professor Masasuke Araki in Nara and Dr Peter Meacock in Leicester – has involved exchanges in both directions involving undergraduate and postgraduate students and members of staff. As part of the visit Mark gave a seminar to staff and students in the Department of Biological Sciences about the University of Leicester, the School of Biological Sciences and the work of GENIE. He also visited Nara Women’s University Secondary School to lead a session on genetics for pupils using some of GENIE’s interactive activities.

Our 4th GENIE public engagement lecture proved to be a huge success with over a 100 people attending.

Our 4th GENIE public engagement lecture proved to be a huge success with over a 100 people attending. The first talk was given by Professor Martin Tobin, who spoke about lung health, outlining the advances made in this area and how this information could be used to improve prevention, diagnosis and treatment. In the second talk, Dr Salvador Macip introduced the intriguing concept that cancer and aging could be two sides of the same coin. Both talks were really well received and promoted some interesting discussion at the end. Feedback from the talks was overwhelmingly positive with nearly 90% of attendees saying they would definitely attend future events.

One of the students who attended from Beauchamp College wrote:

“These lectures gave me a brilliant insight into genetics... In the current ‘education climate’, it is a necessity to engage in further reading and develop one’s understanding of a subject, and I feel these lectures have aided to this. By gaining a better understanding of genetics, and grasping new concepts, I am further enthused to continue researching information about genetics.’

The talks were described as ‘amazing’ and ‘inspiring’ by two other attendees on our twitter page. The feedback and positive comments show that there is a real appetite in the local community to hear about cutting-edge science and these events give local scientists the perfect opportunity to share their work. We hope we can continue to provide similar entertaining and informative talks in the future.
DNA Fingerprinting Taster Day

Recently we ran some molecular biology taster sessions for two sets of students from Bosworth Academy.

The sessions were intended to give the students an idea of how DNA technology can be used outside of research. For the first session, the students took part in a meiosis card game where they are able to see the effects of random recombination events and how this creates an infinite variety in our DNA during meiosis. After this, they used DNA fingerprinting techniques to solve a crime where they were matching basic DNA fingerprints to DNA found at a crime scene. The students also took part in an activity where they could see how their genetic make-up can be traced back to ancestors from all over the world. The crime scene activity can be found on our Virtual Genetics Education Centre website and can be downloaded and used by anyone.

The second session focussed more on DNA fingerprinting and profiling. The students got hands on experience of using micropipettes to load agarose gels and learnt how DNA is amplified and analysed. They were able to take pictures of their gels and use this to solve the crime scene activity.

Other News

GENIE Presents at Annual STEM (Science, Technology, Engineering and Mathematics) Conference

Professor Cashmore’s talk ‘Development and Evaluation of the Use of Second Life in Biomedical Science Laboratory Teaching’ which was presented in the Innovative Practise session, generated a lot of interest at the STEM Annual Conference 2012. STEM subjects are recognised as having strategic importance in higher education for the economy and employers. The talk presented some of the work from GENIE’s SWIFT project, a collaboration between GENIE (Dr Suzanne Lavelle) and the Beyond Distance Research Alliance (Dr Paul Rudman), which has successfully introduced the use of Second Life into higher education. You can visit the labs at http://maps.secondlife.com/secondlife/Media%20Zoo/85/199/32. Learn more about the SWIFT project at www.le.ac.uk/SWIFT

Dr Cas Kramer also spoke at the STEM conference. He presented preliminary results using the award-winning Evolution Game in first year undergraduate teaching at the University of Utrecht (The Netherlands) in November 2011, as well as here at the University of Leicester in March 2012. The Evolution Game won an international award for Science Communication in December 2010 for its use in Public Engagement. Cas has recently successfully expanded its use into Higher Education. His talk was very well received and it was clear that many in the audience saw potential for using this simple board game concept within their own field within STEM.

One Day Conference on Bioethics

GENIE and the Higher Education Academy (HEA) STEM team hosted a one day conference on teaching bioethics in May. The event consisted of short presentations from a number of delegates and concentrated on the ethical aspects of innovations in biomedicine and the issues they may raise. The event was well attended and Professor Cashmore commented on how it ‘was inspiring to hear people’s views and about their efforts to ensure ethics is introduced into the curriculum’.

Leicester Students Compete to Develop Solution to Polystyrene Pollution

This year, for the first time, the University of Leicester is entering a team of second year undergraduates into the International Genetically Engineered Machine (iGEM) competition. We will be reporting on their progress in the next issue but you can read more about their project at http://uoleicesterigem2012.blogspot.co.uk/p/citizen-science-experiment.html
Upcoming Events

Public Engagement Lectures
Our next GENIE public engagement lectures will take place on the 9th October. The speakers will be Dr Flav Giorgini, whose lecture is entitled ‘Targeting genes for therapy in neurodegenerative disease’ and Professor Rhona Borts, who will speak about ‘Sex and the single yeast’. The lectures will take place in the Frank and Katherine May lecture theatre, Henry Wellcome building. To book your place, email genie@le.ac.uk.

HEA (Higher Education Academy) Annual Conference
The HEA annual conference takes place on the 3rd and 4th of July at the University of Manchester. GENIE will be attending and focussing on rewards, recognition and promotion in the higher education sector.

Royal Society Summer Science Exhibition
A team of Leicester scientists and health professionals, led by Dr Cas Kramer, GENIE’s Outreach and Public Engagement Coordinator, have been successful in securing a place to exhibit at this year’s, very prestigious Royal Society Summer Science Exhibition, to be held in London from 3-8 July 2012. Their exhibit is called “Breathless Genes: the lung and the short of it”; for more information visit the Royal Society or GENIE websites.

Congratulations
Congratulations to Dr Sarah Gretton who achieved a distinction in her Postgraduate Certificate in Academic Practice in Higher Education. Recently Sarah visited BMA house, London, to speak to students embarking on the Postgraduate Diploma in Diabetes. The Postgraduate Diploma in Diabetes is provided by BMJ Learning as part of a new collaboration with the University of Leicester, more details on the course can be found at http://diabetesdiploma.bmj.com/

Also well done to our editor Dr Colin Glen and his colleagues from the Department of Genetics, (Andre Gomez, Saf Mughal and James Wilson), for taking part in the ‘Tough Mudder’ event in aid of sports relief (www.justgiving.com/G7Genetics). The event is described as ‘probably the toughest event on the planet’. Tough mudder is a ‘hardcore 12 mile-long obstacle courses designed by the Special Forces to test your all around strength, stamina, mental grit, and camaraderie’. There were lots of serious injuries on the day, but thanks to their teamwork, our team pulled through without any problems.

Finally welcome to Jenna Alnaja and Annette Samuel who have recently joined the GENIE team

Follow us on Facebook and twitter
Facebook: www.facebook.com/LeicesterGenie
Twitter: GENIE_tweets

Research in Focus

Copper and iron homeostasis in human pathogen Candida albicans.

Jenna Alnajar and Gunjan Wig (Department of Genetics).

Professor Cashmore has always been a keen advocate of promoting the synergy between subject-based research and teaching. As well as being the director of GENIE and sub dean of the medical school, she also runs a research lab. In this issue of GENIE news, we take a closer look at one of her research projects.

Candida albicans is commonly found in the mouth, gastro-intestinal tract and vagina in 50-80% of the population. This yeast is also an opportunistic pathogen that can cause infections in a weakened immune system. If this occurs in immune-compromised individuals it can result in life-threatening diseases. The estimated mortality rate of Candida caused bloodstream infections is 49%.

Iron and copper are essential for most organisms, important for a variety of cellular processes and essential for virulence in C. albicans. The two are closely linked; iron transporters require copper to function. Both are not readily available in the host environment where they are found in insoluble complexes that must be separated from their environmental ligand to allow uptake into the cell. Keeping levels of free iron and copper low in the human body defends against infection. C. albicans is still able to thrive in this environment due to a number of specialised genes. These encode proteins some of which allow the organism to access internalized copper, others are able to detect levels of copper allowing for careful regulation. We are currently investigating transcription factors that regulate iron and copper acquisition in C. albicans. By investigating the genes involved in copper and iron homeostasis we aim to be able to determine whether they can act as potential drug targets for future therapies.