Introduction from the Director, Annette Cashmore

It is my pleasure to introduce this, the first edition of GENIE News.

A tremendous amount of work has been done since 2005, when a Higher Education Funding Council for England award enabled us to establish GENIE. Laboratories have been refurbished, websites launched, events hosted, collaborations formed and many new projects begun. Throughout our aims have been, and remain, to build on existing expertise and synergy between genetics education and world-class science, to develop new resources and to assemble networks for the dissemination of good practice and innovation. I am sure GENIE News will provide a valuable new insight into how we are achieving those goals.

GENIE Secures EU Funding for Outreach

In collaboration with EU-funded researchers in Ireland and at Nottingham Trent University, GENIE has developed a board game to highlight the effects of DNA mutation, both positive and negative. The Mutation Game can be used in the classroom or at science events. It is based on a simple board, a number of straightforward rules and a set of mutation cards and events cards. By changing the set of cards, both in scientific content and in ‘level of communication’, different aspects of DNA mutation can be drawn to the attention of different audiences.

The first version of the Mutation Game was launched during National Science and Engineering Week in March 2010 at Leicester High School for Girls. This first version is set on an alien planet and aims to show ‘evolution in action’. It was very well received by students and teachers, with one student commenting “It was a brilliant game and helps explain about mutations, our group looked the best and I’d like to play it again!”. After slight modification, the game is now to be played in a number of secondary schools in both the UK and Ireland.

For more information about the Mutation Game, please contact the GENIE Outreach and Public Engagement Coordinator, Cas Kramer (ck53@le.ac.uk).
A GENIE video diary project is revealing the stresses of student life and how to lower the drop-out rate

Report by Louise Tickle

A study being carried out by GENIE at the University of Leicester into the way students experience their time in higher education has shown that post-Christmas blues hit hard when people return for the start of their second term. The findings come from an analysis of two years of video diaries compiled by 40 undergraduates.

“There are a lot of video diary projects being done, but I’m not sure they tell you much more than what you’re guiding the subjects to talk about,” says Professor Cashmore, the Director of GENIE. “We gave first years a video camera, but then no other instruction except that we wanted at least five minutes of footage a week.”

The GENIE team has been surprised by the spike in anxiety levels that was caused by going home over Christmas and then returning for the first weeks of the spring term. “There were some really heartfelt videos that discussed things we hadn’t really appreciated the impact of,” Professor Cashmore explains.

Ann Akeredolu, 19, says she couldn’t really enjoy that first Christmas break because of concern about exams. “I knew there were six as soon as I got back in January, but I also wanted to go home and have fun,” she remembers. “So I went home, but then didn’t do any revision. At that point I was quite worried. It meant I had to cut short the time with my family to go back to uni a week early to revise.”

Akeredolu says her anxiety levels mounted as term kicked in and her exams loomed. She also points out that first years are having to deal with living without their familiar support structures at a time of stress. “For the first few weeks of that second term back, I don’t think I was really settled into uni. You’ve only just made your friends, and they’re not deep friendships yet,” she explains.

A central point of the study is to find out what prompts students to drop out of university and how best to support them so they don’t. As the video diary study has gone on, it’s become apparent that students have to adjust to changing social and academic demands throughout their university career. In recognition of these findings, the University of Leicester is now putting in place support structures to help students at strategic points as they move through their course. Podcasts with advice for freshers on subjects such as how to enjoy their initial weeks at uni, how to cope with post-Christmas exam stress and what to expect as the pressure ramps up at the start of their second year have been created by some of the students who are participating in the study. The university is also considering moving its first set of first-year exams so that students aren’t hit with tests while barely yet recovered from their new year hang-over.

Excerpted from Louise’s Guardian article of January 12th: http://www.guardian.co.uk/education/2010/jan/12/students-depression-exam-stress
HERO – Health Education Reaching Out

Report by Joanne Singletary

HERO is a GENIE project that aims to educate and inspire people to take responsibility for their own health, diet and well-being. Through interactive workshops, quizzes and public awareness lectures HERO provides people of various social and ethnic backgrounds with the insight to prevent and reduce their risk of developing chronic diseases, such as cancer, heart disease and diabetes. The project also aims to promote awareness of the links that exist between an unhealthy diet, a sedentary lifestyle and serious health problems in later life.

In 2008 & 2009 ‘HERO Days’ were organised to provide school children and their teachers with a variety of hands-on activities relating to health, diet and exercise. Activities included cycling off the calories in a chocolate bar, finding out how much salt and sugar is found in everyday foods and understanding how diet and lifestyle are linked to different diseases. From 2010 HERO will be working with schools in Leicestershire and Northamptonshire to explore teenagers’ perceptions, attitudes and understanding of diet and disease. This will involve research to determine the teaching approach that best increases pupils’ knowledge and understanding of how diet and exercise can affect their health.

Other HERO activities, such as ‘Cancer Awareness and Healthy Living Evenings’ (with Hope Against Cancer), and a public awareness lecture on dementia (with the Alzheimer’s Research Trust), have focused on health and well-being among the general public, and university students and staff. HERO has also participated in the University’s Healthy Living Week and Science Activity Day, and a genetics health public awareness evening organised by GENIE.

HERO was developed in collaboration with and is jointly funded by the National Institute of Health Research Collaboration for Leadership in Applied Health Research and Care for Leicestershire, Northamptonshire and Rutland (NIHR CLAHRC-LNR). Part of CLAHRC’s remit is to implement projects that improve health and evaluate the best practical approaches to deliver lifestyle outreach messages.

To find out more visit:
http://www.le.ac.uk/genetics/genie/projects/hero.html
http://www.lnr-clahrc.org/
The Swift Project
Report by Suzanne Lavelle

SWIFT (Second World Immersive Future Teaching) is a collaboration between GENIE and the Beyond Distance Research Alliance, using the latest 3D Multi-user Virtual Environment technology to enhance the teaching of students in Genetics. This will enable Genetics students to become familiar with lab equipment and health and safety in the virtual environment before starting real-life lab sessions.

Whereas the lab is virtual, the students that will use it are not and nine hundred students will benefit from using it over the next three years. Students will develop their laboratory skills and also perform activities in the virtual labs in ways that they are not able to in real labs. For instance, a sequence of experiments may actually take several hours to complete in real-time, yet the virtual lab allows them to practice designing experiments and then immediately analyse the results.

More details on the SWIFT project can be found on the project website at www.le.ac.uk/SWIFT where you can also subscribe to the blog.

Upcoming Events
Tuesday 14th and Wednesday 15th of September: GENIE will be hosting Dynamic DNA, an event full of fun and learning for Year 9 school pupils and including a range of hands-on activities. For information about Dynamic DNA, please contact Cas Kramer (ck53@le.ac.uk)

October 2010: The first of the new series of GENIE Public Engagement lectures. Details to be posted on the GENIE website soon (www.le.ac.uk/ge/genie/).

Research in Focus
A Matter of Life or Death

A new research project in the Department of Genetics led by Dr Raffael Schaffrath is investigating how cells die and what signals are required for their fate to be sealed. The Wellcome Trust funds the project and research assistant Dr Alex Woodacre tells us more:

“We are using the baker’s yeast Saccharomyces cerevisiae as a model organism to study the effects of ceramide on the fundamental processes of cell proliferation and death. Ceramide is a building block of complex sphingolipid molecules, which are an essential component of cell membranes. However, excess ceramide is toxic. Ceramide and sphingolipids are also signalling molecules and trigger diverse cellular processes. The signal is transmitted from protein to protein by addition and removal of phosphate groups, and we are investigating how the de-phosphorylation protein Sit4 communicates ceramide signals. We are also interested in finding out what other proteins are involved and the functions of these accessory proteins which may switch on Sit4 activity or target Sit4 to specific substrates. This will provide insight into how ceramide levels determine the fate of cells and how this tightly regulated process may be disrupted in cancer cells.”

please contact Cas Kramer (ck53@le.ac.uk)