Lachlan Macquarie College – excellence in maths and science

The University of Western Sydney Schools Engagement Program provides primary and high school students with opportunities to not only improve their academic performance, but also to expand their horizons.

Lachlan Macquarie College (LMC) is a UWS partnership with the Western Sydney Region of the NSW Department of Education and Training. Established in 2008, it develops and provides high quality and innovative programs to enhance student learning outcomes in maths and science. Focusing on years 7–12, the College delivers a suite of academic enrichment activities for students as well as offering cutting-edge professional development opportunities and resources for teachers.

Student programs have included:
- Atomic Statistics
- Experience Science@UWS
- Crime Statistics
- Atomic Absorption Spectrophotometer Challenge
- HSC lecture days
- Tall Poppies seminars for female students, with around 500 students participating
- Astronomy online masterclasses
- A threshold concept research project, Crossing Thresholds in Biology
- Integrated Science: a problem-based approach to learning in science
- Discover Science@UWS (using the confocal bio-imaging facility)
- Other activities specifically designed for gifted and talented students, including Challenge Days and Video Conference Forums in maths and science.

Many of these programs are tailored for the different stages in the high school curriculum. They draw on the expertise and teaching practices of educators from schools, universities, government agencies and professional bodies. The involvement of these groups provides valuable professional development and networking opportunities for the teachers involved.
Specific programs for teachers of maths and science are developed in response to requests so the content and mode of delivery is designed to meet the needs of individual schools. A dedicated website has information on events, access and links to teaching and learning resources, and news of professional development activities. There is also an illustrated monthly email newsletter outlining recent and forthcoming activities and relevant national and state developments in high school education.

The Crossing Thresholds in Biology project is an innovative action research partnership that aims to help students overcome learning barriers. Threshold concepts are those concepts that students find conceptually demanding, but which are essential for understanding and progress in a subject.

Integrated Science is a new online unit developed by UWS. It brings together physics, chemistry, biology and maths. Both senior LMC students and UWS undergraduates are completing the unit, which was introduced early in 2010 and comprises interactive learning modules on topics such as cyclones and disasters, genetic secrets, and the cost of climate change.

In 2009, LMC (which is located close to the UWS Parramatta campus), worked with seven high schools, with other public high schools in the Western Sydney Region also invited to participate in some activities. It is planned to expand the number of schools that are directly involved over time.

For further information see the LMC website at www.lmc.nsw.edu.au or contact Mark Grady at LMC on mark.grady@det.nsw.edu.au or SchoolsEngagement@uws.edu.au.