Welcome to the third issue of the UniChe Newsletter. The UniChe Project has been in operation since 2000. It was originally developed to provide an avenue for students in Chemistry based subjects to meet with industry to increase awareness of the many different interesting careers a degree in Chemistry can lead to. The UniChe project is a collaboration between the Commonwealth Government, the Universities of Melbourne, Newcastle and Queensland, the Australian National University and ORICA with other chemical industries of Australia. It is part of the Federal Government’s effort to increase the number of students in Enabling Sciences.

The UniChe Project aims at stimulating the most able students by arranging Winter Field Trips, Summer School programmes and by offering financial support for Honours and PhD projects. Since 2001, almost 300 students, with average grades of HD or D, have benefited from taking part in the annual Summer School and Winter Field Trips. These activities have provided enrichment for elite chemistry students, and are an excellent opportunity to meet students from other Universities.

The 9th very successful Winter Field Trip to Newcastle took place in July, and on page 4 there is a report on the last Winter Field Trips. Students are now being guided by some of the original UniChe participants, employed in the different industries. This contact between present and past students in chemistry provides opportunities to ask questions in an informal setting and facilitates mentoring of students later on in their studies.

In February, 37 selected students participated in the 5th UniChe Summer School in Canberra and Melbourne. The UniChe Summer School focuses on teaching some of the necessary business skills with classes on Product Development, Life Cycle Analysis, Intellectual Property Protection as well as Finance for Scientists and different time management techniques. This was combined with visits to industry and to research laboratories.

In 2005, three UniChe Outreach Coordinators have been appointed, financed by the UniChe Project. They are employed to increase the contact between schools and universities through visits both to different schools, and by the schools and their teachers to the universities. The UniChe Outreach Coordinator at the ANU also assist in organising events such as the Australian Science Olympiads Chemistry Program run by Australian Science Innovations to raise awareness of and interest in chemistry amongst students in Year 11 and 12 around the country.

Another important role for the Coordinators is to improve the retention rate of Chemistry students at the universities. The new UniChe Coordinators are introduced on p. 2 and 3.

At CONNECT 2005, organised by RACI, Professor John W White, from the Research School of Chemistry, ANU, gave a presentation at a plenary lecture for the Chemical Education Division on the UniChe Project which was very well received.

### Call for Honours Projects for 2006

It is time for nominations for new Honours Projects commencing February 2006.

Funding is available for both ORICA related projects and those from other chemical industries.

More details from your local UniChe Coordinator or Dr Phil A Reynolds (phil@rsc.anu.edu.au).

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**The UniChe Project is a collaboration between the Commonwealth Government, the Universities of Melbourne, Newcastle and Queensland, the Australian National University and the chemical industries of Australia.**
UNICHE OUTREACH COORDINATORS

One of the UnIChe Project's main objectives is to ensure that students are attracted to, and retain interest in, studying Chemistry. The UnIChe Project has been joined by three Outreach Coordinators, employed at the Australian National University, the University of Newcastle and the University of Queensland, to ensure that Chemistry is what the students’ imagination is caught by as they apply for university, and that, once enrolled, students are kept stimulated, becoming passionate about their subject.

If you want to know more about UnIChe activities at your university, contact your UnIChe Coordinator by e-mail or phone.

Mark Ellison, the Australian National University

Dr Mark Ellison joined the Australian National University as UnIChe Outreach Coordinator at the beginning of 2005. Mark graduated from The University of Western Australia and Murdoch University with a BSc (Hons) in Chemistry. He also holds a PhD in Science Communication from The Australian National University. Mark’s Thesis “Communication of Chemistry - Is Current Practice Effective?” highlights potential improvements in communication of chemistry for the purposes of teaching and the more general education of the broader public.

Mark talks about his present challenge at the Department of Chemistry at the Australian National University: “UnIChe is an important component of the Chemistry Department’s Outreach program. It is critical that we use a school outreach program to raise awareness of the many and varied career options in chemistry. Strategies that increase the retention of undergraduate students through their undergraduate chemistry degree are necessary. We need to maintain and increase our number of “home grown” Honours and PhD students. The UnIChe Summer School helped to showcase the Chemistry Department, and the participants certainly enjoyed their ice-cream making experience. It is my belief that we have to very strategic in the way that we raise awareness of chemistry to secondary students. Presenting lectures at various secondary schools, while useful, is extremely time intensive - the reward in terms of increased numbers of first-year chemistry students must be significant. It is important that the lectures link in with the chemistry syllabus and are seen as a useful and contextual addition to the classroom work.

I have developed an experiment that suits the year 12 ACT chemistry syllabus. It is the analysis of potassium ions in wine using Atomic Absorption Spectrometry. On August 23, all schools in the ACT and surrounding areas are invited to the Titration Stakes.

At the Science Festival, an interactive show called “Colours to Dye For” will be presented by Sue Stocklmayer and me. During the Science Festival, studies Chemistry mini-degrees will be organised at the ANU. In my role as a member of the faculty’s marketing committee, I often visit School Careers evenings which is another opportunity to showcase Chemistry.”

Mark’s e-mail address is mark.ellison@anu.edu.au, and his phone number 02-6125 4398

Sarah Leitch, University of Newcastle

Dr Sarah Leitch graduated from the University of Otago, NZ, BSc (Hons.) and then completed a PhD with Professor Lew Mander at the Research School of Chemistry, at the Australian National University in organic synthesis. During the last 4 years, Sarah has combined research and lecturing at the University of Newcastle.

The promotion of chemistry and careers in industry/research has led to the organizing of a Careers Day in conjunction with the RACI NSW branch Careers Events. This will be held in September at the University of Newcastle. Year 11&12 students from local high schools, along with Science teachers, will be invited to participate in the event.

Locally hosted annual events, such as the titration competition and the experiment fest, are also being utilised to become more actively involved with teachers & in the promotion of chemistry in outreach to local schools. They are also being utilised to become more actively involved with teachers & in the promotion of chemistry in outreach to local schools.

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Sarah can be contacted over e-mail at Sarah.Leitch@newcastle.edu.au, and her phone number 02-4921 7107.

Dr Mark Ellison and Dr Sarah Leitch, UnIChe Coordinators at the Australian National University and at the University of Newcastle.
Paula Myatt, University of Queensland

Dr Paula Myatt was appointed to coordinate the UniChe project at University of Queensland in October 2004. After graduating with a BSc majoring in science and journalism, Paula went on to do a PhD in microbiology at The University of Queensland. Paula worked for 3 years within a dynamic research centre at University of Queensland where she was responsible for communication and education activities within the centre. After this, she spent 3 years at the University of New South Wales in Sydney focusing on science education, writing a postgraduate Masters Program in Biotechnology for external students.

In 1998, she returned to UQ to work as a lecturer in science. During this time, she realised her strong interest was in the design of better learning environments and resources, to optimise student learning and teacher teaching! To achieve this, Paula completed a Graduate Certificate in Higher Education. In early 2002, Paula joined the Bright Minds team where she designed the Advanced Study Program in Science.

Paula is now focusing her efforts on Chemistry – with the UniChe project targeting the best students of chemistry at High School as well as those studying chemistry at UQ. As Paula herself says: “Being the UniChe coordinator at The University of Queensland means that I work with the UniChe Management Committee to design effective activities and events which meet the overall aims of UniChe - to promote the best students to consider a career in the chemical industries. Over the past 13 years, I have worked in science communication and science education - for several research centres both in Brisbane and in Sydney - including designing postgraduate and undergraduate courses. I began my career with a BSc majoring in science and journalism, and then. I think I always knew I wanted to promote science, and this led naturally to science communication, an extra qualification in education and a career in higher education.

I also have 3 children (aged 8, 6 and 1.5) and find myself to be very busy, but I am always keen to hear from people interested in chemistry or in what UniChe is trying to achieve!! You can contact me on p.myatt@uq.edu.au or 07-3346 9535."

Do you want to know what UniChe is doing at your University?

Contact your UniChe Coordinator to find out about lectures, scholarships, field trips and other excursions!

The Australian National University
Dr Mark Ellison mark.ellison@anu.edu.au

The University of Newcastle
Dr Sarah Leitch sarah.leitch@newcastle.edu.au

The University of Queensland
Dr Paula Myatt p.myatt@uq.edu.au

Krisztian Baranyai, PhD Student

Whilst finishing off my masters at Monash University, I was browsing the web for PhD opportunities offering a dynamic research environment with industrial collaboration. I was already aware of the prestige of the ANU, and the RSC was one of my first ports of call. It was this way that I came across Prof. John White’s research group and in particular, the research opportunities and collaborations offered by the UniChe program.

My PhD topic is in direct collaboration with ORICA. As a result of this, I regularly get the opportunity to present my work to our industrial partners at joint RSC-ORICA meetings, give presentations at industrial symposia and to obtain a general perspective of the chemical industry.

I believe that this program provides an excellent basis for entering into either industry or academia for future career prospects and would highly recommend the UniChe programme to any prospective candidates.
**WINTER FIELD TRIPS**

The theme for the UniChe Winter Field Trips to the Hunter Valley has been “Ammonium Nitrate in Industry”. The strict safety regulations at the industrial sites visited, means that numbers on the Winter Field trips are restricted to 20 students. The students are selected by self nomination from those topping the current end of semester examinations, and by interview. The places are divided between the universities participating in the UniChe Project.

On the nine Winter Field Trips, visits have been arranged to:
- **Orica Ltd.** At Kooragang Island where ammonium nitrate is produced from natural gas and air via intermediate ammonia and nitric acid stages.
- **Orica Explosives Kurri Kurri Laboratories** where emulsion explosives containing ammonium nitrate are developed at laboratory and at pilot plant scales.
- **Stratford Mine** where coal is produced at an open cut by use of explosives, and then further upgraded in a coal washery.

**UNICHE SUMMER SCHOOL 2005**

“The Business of Chemical Innovation” was the theme of the fifth UniChe residential Summer School, held from the 6-19th February 2005 at the Australian National University and at the University of Melbourne. A group of thirty-seven students were invited to attend, all achieving distinction marks or better in their chemistry studies.

The course consisted of five parts, all intended to improve the business skills of the participants; Finance for scientists, Project Management and Entrepreneurship, Business skills within Orica, Intellectual Property and Time management & effective meetings.

In addition to the modules further academic content was provided by various visits. Half-day visits were made to Orica Consumer Products Laboratory and Orica’s batch chemical plants producing adhesives, resins and ‘MIEX’ resins. Aspects of university research laboratories were investigated by two one hour visits to parts of the chemistry departments at ANU and visits to Melbourne Chemistry and Chemical Engineering departments. The latter gave a presentation on their research activity which was warmly received.

**If you are interested in attending the UniChe Summer School in 2006 please contact the UniChe Coordinator at your University.**

Social activities provided were a welcome banquet, a BBQ and a Presentation/Farewell dinner. Full board accommodation was provided at Bruce Hall, ANU and University College, Melbourne.

The course presenters, coordinator and other staff involved, as in previous years, remarked on the excellent attitude and application of the students - perhaps to be expected since they were both volunteers and able students. Again this year, strong links between the students from the different universities were formed.

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UniChe News is produced by Lena Britton at the Research School of Chemistry, Australian National University, for the UniChe Project.
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Professor John W White blowing glass together with Summer School students in February 2005