

Easing the School-to-University Transition



As part of Chemistry for our Future (CFOF) 10 diverse projects were set up at different universities to help ease first year undergraduates into their new university life. The projects addressed the key areas of maths and practical skills, new materials and approaches to teaching, and student support and outreach schemes.

The aims of the project were to:

- Develop first year undergraduate curricula that best support the transition
- Widen the uptake of chemistry by producing an attractive first year of study
- Improve retention, especially with widening participation students
- Inspire new undergraduates

A brief summary of each of the 10 projects is included in this flyer. For more information or ideas of how to introduce these initiatives at your institution please contact the individual project leaders.

Maths and practical skills

Quantitative chemistry - a blended-learning resource

University	Project Summary	Successes
Bath	Development of interactive web resources for teaching maths in the context of chemistry.	VLE maths resources available at www.symplekta.co.uk and the project has advised the Pfizer funded initiative Discover Maths hosted at the Royal Society of Chemistry (RSC).

Contact – Dr Gareth Price (G.J.Price@bath.ac.uk)

Maths provision for new chemistry undergraduates

University	Project Summary	Successes
Bristol	Review of how maths is taught to chemistry undergraduates at 30 HEI departments and development of week-long maths workshop aimed at students without A-level Maths.	Project has advised Discover Maths. Massive improvement in algebra and calculus skills during summer school for pupils; around 7% improvement in Yr 1 physical chemistry marks.

Contact – Professor Dudley Shallcross (d.e.shallcross@bris.ac.uk)

Chemical boot-camps

University	Project Summary	Successes
Manchester	A week-long intensive course in practical techniques in organic, inorganic, physical and analytical chemistry, run the summer before students start their chemistry degree.	The course has significantly boosted the confidence of Yr 1 undergraduates in the labs: 'I feel very strongly that this week will make the transition between sixth form and university a lot smoother and much less daunting.'

Contact – Dr Sarah Heath (sarah.l.heath@manchester.ac.uk)

New materials and approaches to teaching

Untangling the concept chain

University	Project Summary	Successes
Loughborough	Reviewing the first year teaching model - introducing ideas and concepts in a logical order to mesh with students' previous experience at A-level.	Concept map produced, based on student feedback, to determine how much overlap there is in organic and physical chemistry at A-level and Yr 1. An introductory 'structure and reactivity' module has also been developed.

Contact - Professor Ray C F Jones (r.c.f.jones@lboro.ac.uk)

Video guidance for transitional chemistry

University	Project Summary	Successes
UWE	Addresses the pre-arrival knowledge gap in chemistry using short, online video clips focused on bite-sized learning objectives. Training developed in local production of videos using screen-capture software (Camtasia).	Over 40 organic videos reviewing A-level chemistry are available at www.science.uwe.ac.uk/lis/orgchem/ . Videos on essential maths for science and statistics available at www.science.uwe.ac.uk/MathsStats/video_link/video.htm .

Contact – Dr Dilys Thornton (dilys.thornton@uwe.ac.uk)

Student support and outreach

Developing inspirational activities for new undergraduate students

University	Project Summary	Successes
Hull	Two competition/game events for first year undergraduates designed to improve team-working skills, build confidence and willingness to participate.	90% attendance of event in the first semester. Activities encourage entrepreneurship such as forming a company and patenting and marketing a product. As part of a range of Yr 1 activities, the project has improved retention and greater student satisfaction.

Contact – Dr Phillip King (p.j.king@hull.ac.uk)

New methods for student mentoring

University	Project Summary	Successes
Reading	Supporting new students through directed self-study, a parenting scheme and non-traditional course delivery using Personal Response Systems (PRS).	Production of online self-study materials; 73% of Yr 1 undergraduates stated they felt more confident carrying out experimental techniques having completed the introductory practical course.

Contact – Dr Elizabeth Page (e.m.page@reading.ac.uk)

Chemistry - from registration to graduation

University	Project Summary	Successes
Southampton	New online resources and teaching methods which bridge the knowledge gap between A-level and Yr 1 undergraduate chemistry.	Resources including virtual tours, A-level revision resources and use of PRS. A pre-lab course has been developed (including videos), and interactive online resources to help students respond to feedback.

Contact – Dr David Read (D.Read@soton.ac.uk)

Science for the 21st Century initiative

University	Project Summary	Successes
Warwick	Promoting contemporary science to pre-university students via experimental research, publication of a science review journal and a national biennial conference. The scheme forges links between state and independent schools in the area.	Formed clusters of schools within the area each developing strong links with the University. Outputs can be seen at http://www2.warwick.ac.uk/fac/sci/chemistry/

Contact – Professor Tim Bugg (T.D.Bugg@warwick.ac.uk)

Chemist-2-Chemist

University	Project Summary	Successes
York	Developing a support network that will coordinate academic, pastoral and social aspects of first year undergraduate chemistry as well as a schools outreach programme which involves Yr 1 undergraduates visiting their old schools.	Interaction between current chemistry undergraduates with incoming undergraduates - support mechanisms include student mentoring and revision workshops. Organised over 30 school visits, reaching 400 Yr 11-13 students through the outreach programme.

Contact – Dr Nigel Lowe (nl6@york.ac.uk)

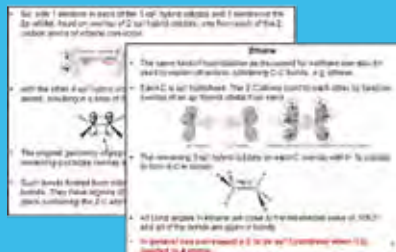
Project examples

Video guidance for transitional chemistry – University of the West of England

A set of basic and organic chemistry flash videos have been produced by UWE and are available free online. The videos have had excellent feedback from both students and other academic staff:

- 'clear and easy to understand'
- 'good because you can pause and go over material as many times as needed'
- 'a revision aid to enhance material covered in lectures'

A training workshop for academic staff demonstrated that these videos are also easy to produce, with other lecturers now using the same technology to develop their own learning resources.



Interactive online lecture courses available at www.science.uwe.ac.uk/ls/orgchem/

Science for the 21st Century - University of Warwick



"It is refreshing to see so many youngsters communicating modern science with high levels of enthusiasm and proficiency."

Prof Sir David King FRS, HMG Chief Scientist - referring to the work conducted by the University of Warwick

Chemistry: from registration to graduation – University of Southampton

"The highlight for us at Southampton has been the engagement of students with the developments we have been working on, and our project has facilitated the two-way communication between staff and students. Our introduction of zappers (PRS) and pre-labs has been met with almost universal acclaim from students, and they have been forthcoming with constructive suggestions for improvements which will benefit future cohorts. Perhaps the clearest indication of the success of our project is found in our retention figures, with a remarkably low dropout rate of <3% in the current 1st year, which is an improvement on recent years."

Dr David Read, University of Southampton

Cover Image:

Students participating in the Chemistry "boot camp" hosted by the University of Manchester prior to beginning their undergraduate courses.

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