

Chemistry Admissions

Feb 2009 NEWSLETTER

Exciting news

We hope that this newsletter will help you to get a sense of the excitement and enthusiasm that we all share at York for Chemistry. Over the past year, the Chemistry Department has consolidated its position as one of the UK's leading university departments. Our research was extremely highly rated in the most recent Research Assessment Exercise (December 2008) and in the 2008 National Student Survey, the Department was once again rated in the **top 5** of UK Chemistry Departments for overall student satisfaction. Both the *Guardian* and *Times* league tables (for 2009 entry) rank the Department **5th** in the UK.

If you would like to find out any more information about the Department, you are welcome to contact us, or best of all come and visit us. The main University campus is only ten minutes by bike from the city centre. York is a friendly city, famed for its pubs, bars and restaurants, and has a thriving café culture. Beyond the City of York lies some of Britain's most attractive and impressive countryside with a great many places of natural beauty and historic interest. If you are able to visit the Department, you can be assured of a warm welcome:

"York was the first Chemistry Department I visited, and there was an exceptional feeling that I'd stumbled onto something good – no other department seemed to match it. Nine months ago I picked York as my first choice University and I have not regretted it since. In fact, it may even be the best decision I've ever made."
Year 1 MChem Student



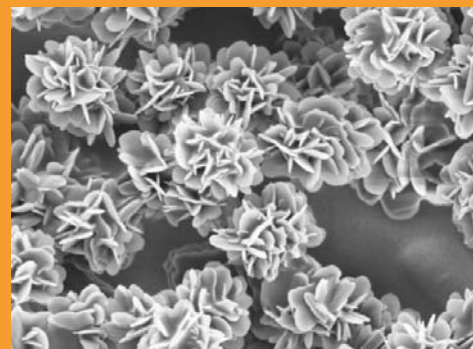
Dr Andrew Parsons
Undergraduate Admissions Tutor,
Deputy Head of Department

Katrina Sayer
Undergraduate Admissions Officer

Research at York: Nanotechnology and the Nanocentre

Research is a vital part of University life and all of our undergraduate Chemistry degrees have, as an important component, a research project. Students studying for the BSc or who have selected the MChem (York) programme, will undertake their project in one of our research laboratories, where they will work alongside students studying towards a PhD degree and have access to the modern instrumentation that the department has to offer. Students are able to choose an area of research for their project, and with around 50 research active staff there is a wide choice. The Department's research is divided into 7 main areas:

- **Analytical and Atmospheric** (including NMR spectroscopy and mass spectrometry)
- **Biological** (including drug discovery)
- **Green/Catalysis** (including the development of new fuels)
- **Inorganic** (including the use of metals in medicine)
- **Materials** (including liquid crystals)
- **Organic** (including synthesis)
- **Physical** (including laser spectroscopy)



The chemical secret to controlling the way in which molecules assemble, to form structures such as roses, is to carefully direct the intermolecular interactions between them.

Much of our research breaks down the artificial barriers between the different branches of Chemistry (such as inorganic, organic and physical) and it can also overlap with other areas of science, such as in nanotechnology, a field of research which unites chemists, physicists and biologists. Nanotechnology refers to the control of matter on a length of 1 nanometre (one billionth of a metre). This can be achieved by controlling the way in which organic molecules interact with one another through hydrogen bonding, and researchers at York have been able to spontaneously assemble unique nanosized architectures. The research group led by Professor David

Smith can 'nanofabricate' fibrous sponge like materials with intriguing gel-like properties, or even assemble beautiful roses with nanoscale petals. Self-assembled nanomaterials have exciting potential applications ranging from regenerative medicine (e.g. materials to support and direct cell growth), to nanoelectronics (e.g. nanoscale circuitry for molecular computers). To help progress their research, York researchers have access to the specialised facilities in the York JEOL Nanocentre (opened in April 2007), which includes the centre's flagship £5.5 million electron microscope.

Sponsorship Winners

Several industrial companies offer sponsorships for our undergraduate Chemistry students, and the Department typically offers up to eight scholarships for UK-based students and up to five scholarships for overseas students. A teaching package is provided free of charge to all of our students, which includes a lab coat, safety spectacles, a molecular model set, a Chemistry data book, detailed lab scripts, a skills record and a one-year membership for both the RSC and ChemSoc.



Some of the 2008-9 sponsorship winners with Professor Walton.

Come and visit us

Our visit days offer an excellent opportunity to find out about the University of York. Most importantly, you'll be able to get a 'feel' for the University, which will help you decide whether or not York is somewhere you'd like to spend your university years.

2009 August Visit Days

During August we will be holding a series of Departmental Open Afternoons for prospective chemistry students. These will be held on **5, 12, 19 and 25 August**.

The visit day will involve a free lunch for all guests, a tour of the department's teaching and laboratory facilities, a campus tour, an opportunity to chat informally to members of staff, as well as opportunities to meet our current students and talk to them about what it is like to live and study at York.

Further details including how to book a place can be found on the York website: www.york.ac.uk/depts/chem/ugrad/openaft.htm

2009 University Open Days

The university will be holding Open Days on **Wednesday 8 July** and **Tuesday 6 October**, for further details including booking: www.york.ac.uk/admin/uao/openday/

We have organised a number of talks in the Chemistry Department during the day and you will also have the opportunity to have a tour of our teaching and research laboratories. Members of the admissions team and current undergraduate Chemistry students will also be on hand.

Our Open Days in 2008 were extremely well attended and we received some excellent feedback from visiting students and their parents, including:

"The lectures in the Chemistry Department were excellent, as they gave a real flavour of what it may be like to study at York. All students were friendly and helpful and went out of their way to act as great guides"

These open days are primarily for prospective undergraduate students, but the Chemistry Department organises a Postgraduate Open Day in the Autumn Term (for further details contact: chemgrad@york.ac.uk)

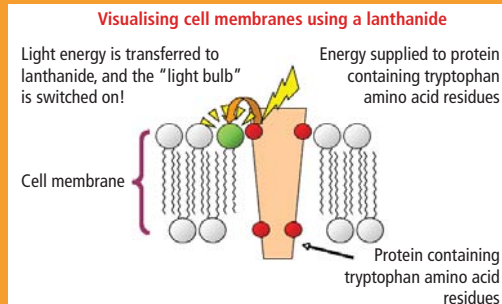
Prize-Winning Research

Many of our academic staff have won learned society prizes and international recognition for their research. For example, in 2008, Professor Gideon Davies was awarded the RSC Peptides and Proteins Award, Professor Simon Duckett was awarded the RSC Magnetic Resonance Spectroscopy Award, Professor Richard Taylor was awarded the RSC Synthetic Chemistry Award and Dr Kirsty Penkman was awarded the Lewis Penny medal by the Quaternary Research Association.

Several of our postgraduate students also win prizes for their research. There are around 150 postgraduate students in the Department, mainly studying for a PhD degree, and four of these students were recently



awarded prizes in the annual Shell Poster Competition. The competition is open to York postgraduates in the third year of their research and, through generous support from Shell, the winners each receive £600.



Our postgraduate students carry out research in a wide range of areas as illustrated by the work of two of this year's winners.

Lee Dingwall is preparing transition metal complexes for use as catalysts in synthesis (in collaboration with BP Chemicals), while Catherine Davies is investigating the preparation of a molecule to visualise cell membranes using a lanthanide.

(A lanthanide, or lanthanoid, is one of the rare elements found at the bottom of the periodic table.) Lanthanides have the ability to fluoresce (emit light), and so we can think of them as acting like a light bulb, enabling us to better see the protein. However, the lanthanide on its own won't emit light, and so Catherine uses the tryptophan

amino acid residues within a protein to act as a battery to "switch on" the lanthanide emission. Proteins that contain a lot of tryptophan amino acid residues can be found in cell membranes, so a molecule containing a lanthanide can be used to study them (see diagram above).

Teaching Award

Dr Jason Lynam will be presented Award for 2009 at the graduation

Jason is the third member of the Chemistry Department to win an individual award, which recognises and rewards excellence in teaching at York. Jason is a lecturer in inorganic chemistry who delivers lectures, tutorials and workshops using a mixture of different teaching styles from traditional chalk-and-talk to the innovative use of computer-aided learning activities and YouTube videos.

Jason has also developed the use of the University's Virtual Learning Environment (VLE). To help revolutionise the delivery of distance learning elements of our Year 4 course, he was involved with the development of the Chemistry VLE site. The introduction of materials, such as the 'Virtual Journal', which allows students to learn about the very latest findings in Chemistry, has proved to be extremely successful. It has led to a much greater use of the VLE, especially in the fourth year of our MChem course, where it allows students across all of our different courses (Year in York, Industry or Abroad) to stay in immediate contact with other students and tutors.

Hat Trick

with a Vice-Chancellor's Teaching

ceremony in July. Following Dr Andrew Parsons and Professor David Smith, Jason is the third member of the Chemistry Department

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Student Societies: ChemSoc and Chemical Interactions

The York University Students' Union (YUSU) co-ordinates sport and social societies, provides welfare support and volunteering opportunities, campaigns on issues decided by students, and directs, along with College Junior Common Room Committees, entertainment on campus.

YUSU has around 100 student societies, including award-winning newspapers, the country's first independent radio station, political parties, music societies to cater for every taste, dance lessons, religious groups, film production, juggling, drama, our own television station and much, much more. It also has around 50 sports clubs competing at inter-college and inter-varsity level. These range from cricket, rugby and football to potholing, skateboarding and paintballing.

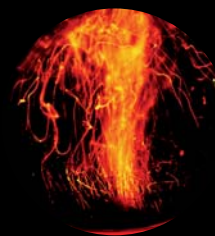
"Aside from the Chemistry at York my precious free time has been spent playing rugby for the University in which I have been captaining the fresher's team, attending house representative meetings for my college, taking part in York Sport social events and cooking 'proper' dinners for my housemates".
Year 1 MChem student

One of the student-run societies is the **Chemical Society (ChemSoc)**, which organises a programme of social events for its members to meet away from lectures and

labs. Recent events have included a fancy dress on a "C" theme, a lecture on chirality and the origins of life, and a summer BBQ with free food, drink and games.

The Department also has a society, called **Chemical Interactions**, which provides departmental members (undergraduates, postgraduates and all staff including post-doctoral fellows) coming from outside the UK with an opportunity to exchange information about their own culture and, most importantly, to provide them with general information about the Department, campus, or the city. Chemical Interactions helps our international members to make the most of this new experience of living and working in a different country. There are over 100 international members of the Department.

Chemical Interactions has already held a number of events this academic year including a welcome party in October which was a huge success. Over 50 staff and students attended to meet, eat, drink and join in a quiz about the Chemistry Department. Their Christmas Party was well attended by staff and students and each brought with them a variety of traditional food from their native countries. More recently the group hosted a celebration of Chinese New Year, with members enjoying dumplings and Chinese Tea, followed by watching some of the Chinese New Year celebrations from around the world.



Year Abroad Opportunities

Year 4 of our MChem programme can be spent either at the University of York, or in paid and structured industrial training, or at one of our partner universities abroad. Our student exchanges bring students from continental universities to York, and give our students the opportunity to spend an academic year in Finland, France, Germany, Italy, Singapore or Spain.

Recently, staff from the Department have visited universities in Australia and Japan to explore fourth-year research placement opportunities for our MChem students, and in the near future, we expect to be able to offer placements at the University of Sydney. There are also opportunities to study at universities in the United States, Canada and Hong Kong under the University of York's exchange arrangements with its partner institutions there. For example, the University of California will make eight places available to York undergraduate students in 2009/10.

"I enjoyed my undergraduate degree at York and used the opportunity to spend my Masters' year in Helsinki, Finland. York had prepared me well to enter a new laboratory in a foreign country, but nothing prepares you for sub-zero temperatures and tonnes of snow! Helsinki is an interesting and exciting city with a blend of old and modern architecture. An advantage is that all Finnish people speak English so I was able to meet lots of new people and to understand lectures, seminars and presentations.

My year abroad allowed me to work in an organic laboratory everyday at Helsinki University. I found that I could put into practise the undergraduate skills learned at York which facilitated the speedy learning of new techniques. My experience there gave me the confidence to carry out research based on my own ideas. I was supported in this through regular discussions with my supervisors at Helsinki and York. Having the scope to use my own initiative in experiments was satisfying and prompted me to apply for a PhD at York."

Year 4, MChem Year Abroad Student



Outstanding RAE 2008 result for Chemistry



Our research is 'world leading', as Head of Department, Professor Paul Walton, explains.

In the recent Research Assessment Exercise (2008) we were placed third equal amongst all UK Chemistry

departments for the quality of our research, with three-quarters of the Department's research work rated as 'world leading' or 'internationally excellent'. Other league tables (e.g. *The Times Educational Supplement* table) consistently have York Chemistry in the top 10.

This outstanding result is a ringing endorsement of the very high quality of research work that is carried out within the department, firmly placing York amongst the very best Chemistry departments in the UK. The result demonstrates the high standards in both teaching and research to which our academics, students and support staff all work.

To be able to work with the department's staff within the world-class facilities the department has available makes it a very exciting time to be studying Chemistry at York.

Meet the Uni

Last July, the Department once again contributed to the annual **Meet the Universities** event in London. The event, organised by the RSC, is designed to be informal, offering potential students (and often their parents too) the opportunity to question university representatives at length about their courses and what they offer to students.



It is not designed to replace the need for a visit to a university's own open day, but it can help students to narrow down their options in advance. The next event will be held on **Saturday 4 July**, at the Royal Horticultural Halls in London, and if you are able to attend, we look forward to speaking with you about our Chemistry degree courses.



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"Since starting the Chemistry course at York I have felt that I am learning something new everyday, which is a wonderfully exciting feeling".

Year 1 MChem student