Job Description

DEPARTMENT OF CHEMISTRY

Job title	Course Developer & Demonstrator (Physical Chemistry)
Division	Mathematical, Physical and Life Sciences
Department	Department of Chemistry
Location	South Parks Road, Oxford
Grade and salary	Grade 7: £32,817 - £40,322 per annum with a discretionary range to £44,045
Hours	Full time
Contract type	Fixed term – 2.5 Years
Reporting to	Director of Teaching Laboratories
Vacancy reference	149626
Additional information	

The role

The Department of Chemistry hosts one of the largest cohorts of undergraduate students for its Masters of Chemistry degree. The course consists of both theory and practical teaching elements throughout the first three years, with the fourth year spent as a member of a research group.

Undergraduate Practical Chemistry is based in the new purpose-built Chemistry Teaching Laboratories. In 2018 a new integrated Practical Chemistry course was launched and in 2020 the team received a Vice-Chancellor's Education award for the innovative teaching methods that have been developed.

The post holder will be based in the Teaching Laboratories and will be responsible for creating experimental resources that align to their expertise yet cross the boundaries of other areas of chemistry, and for the teaching and support of undergraduate students on the integrated Practical course. As well as focusing on the teaching of their own area of expertise, the post holder will be expected to contribute to other areas of chemistry.

The post holder will report to the Director of Teaching Laboratories and will work closely with other teaching lab staff in respect of the creation of the new course.

Responsibilities

Practical Teaching

- Teach undergraduate students on a daily basis in the Teaching Laboratory, providing laboratory supervision and demonstrating experiments involving measurements, explaining the complex academic background material to help them achieve the associated learning outcomes of every session.
- Apply appropriate modern teaching methods to enhance students' learning experience with guidance from the Director and Deputy Director of Teaching Laboratories.
- Seek ways of improving teaching performance by reflecting on teaching delivery and obtaining and analysing feedback.
- Support Junior Demonstrators by providing feedback and advice on a daily basis as appropriate.
- Undertake marking of practical experiments and assessment of students' work according to agreed guidelines and as directed by the Director of Teaching Laboratories.
- Provide tailored feedback to students on their work, understanding where there is a need for support and empathy
- Act as a daily point of contact for students for all matters relating to the practical course including attendance, conduct, performance, course work, pastoral support and welfare (referring matters to relevant others where appropriate).

Course Development

- Developing new undergraduate chemistry practical experiments across the course, but particularly in physical chemistry, under the supervision of the Director of Teaching Laboratories. The development work will include:

- Proposing new experiments in line with the theoretical course;
- Researching each proposed experiment to ensure suitability and practicality;
- Testing and optimising the experimental components of each practical to ensure that it is appropriate for undergraduate chemistry students;
- Developing and preparing written materials to support the experiment, including written instructions and pre-lab and post lab questions for students;
- Supervising junior demonstrators and undergraduate research students involved in testing the new experiments, seeking feedback from the testers and students undertaking live experiments, and proposing improvements and amendments:
- Contributing ideas for new practical experiments for the first and second years.
- To propose, develop and implement projects ideas for the third year, working across the traditional boundaries between Physical Chemistry and other branches of science.

Other

- Use specialist scientific equipment typically found in a chemistry laboratory environment.
- Acting as a source of information and advice to other members of the team on scientific protocols and experimental techniques, particularly where these cross traditional boundaries.
- Commit to a process of continuous personal development to ensure advanced knowledge of all branches of chemistry to ensure excellent delivery of new integrated practical course.
- Participate in regular group meetings as requested to ensure a consistent approach and exchange of relevant information between the two laboratories including troubleshooting unexpected issues; these meetings are likely to be relatively frequent during the transition period for the new integrated Practical course.

Selection criteria

Applicants should:

- Hold a Ph.D. in Physical Chemistry or a closely related subject (or equivalent qualifications and/or experience).
- Evidence of sufficient depth and breadth of knowledge of all branches of chemistry to develop fully integrated material.
- Evidence of strong experimental and analytical skills.
- A demonstrable interest in and understanding of Chemical Education and the teaching of practical chemistry, including knowledge and understanding of modern pedagogic methods.
- Evidence of an innovative approach to problem-solving.
- Evidence of the creation of practical course material at University level, or demonstrable understanding of what is required and why.

- Evidence of excellent Health & Safety knowledge and experience in relation to undergraduate teaching laboratories and how to apply it.
- Evidence of sufficient depth and breadth of knowledge of all branches of Chemistry, primarily physical chemistry, to develop course materials effectively (or a commitment to acquiring such depth and breadth of knowledge within a reasonable timescale).
- Proven ability to work effectively and efficiently as an individual and collaboratively as a member of the Teaching Lab team.
- Evidence of strong time-management and organisational skills to ensure timely completion of experimental development, the creation of accurate and reliable written records and appropriate teaching materials.
- Evidence of excellent written and verbal communication and interpersonal and presentation skills, with the ability to ensure communication is targeted at, and understood by, the appropriate level.
- Evidence of an innovative approach to problem-solving.
- Be familiar with the expected level of prior knowledge and practical skills of incoming students based on GCSE/IGCSE, A-level, International Baccalaureate, Welsh Baccalaureate, Scottish Highers curricula.

Desirable Skills

- A familiarity with online teaching methodology.
- The ability to code in one or more of the common languages used in physical chemistry (Matlab, Mathematica, Python).
- A teaching qualification; e.g. (Associate) Fellowship of Advance HE or equivalent.

Hazard-specific / Safety-critical duties

This job includes the following hazards or safety-critical activities which will require successful pre-employment health screening through our Occupational Health Service before the successful candidate will be allowed to start work:

- Working with category 3b or 4 lasers (laser safety class)
- Work with any substance which has any of the following pictograms on their MSDS:

Additional security pre-employment checks

This job includes the following duties which will require additional security pre-employment checks:

- A satisfactory enhanced Disclosure and Barring Service check due to [regulated activity involving children

About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic,

commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, and in providing all of our staff with a welcoming and inclusive workplace that supports everyone to develop and do their best work. Recognising that diversity is a great strength, and vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities. Income from external research contracts in 2014/15 exceeded £522.9m and ranked first in the UK for university spin-outs, with more than 130 spin-off companies created to date. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information please visit www.ox.ac.uk/about/organisation

Chemistry Department

Oxford has one of the largest and most successful chemistry departments in the world with over 70 research groups comprising around 900 active researchers including 400 graduate students. The undergraduate intake is approximately 190 students a year reading for a 4-year MChem degree. Recent rankings by QS and ARWU place the Department in the top 10 Chemistry departments internationally and the Chemistry undergraduate course is rated either first or second in the UK according to three national newspaper league tables.

In the national Research Excellence Framework (REF) 2014, the Department had the:

- highest 'power rating'
- highest number of 4* (internationally recognised) papers
- best research environment (joint with Cambridge)

of any UK university in the Chemistry Unit of Assessment. The success of the Department is recognised not only by its position in national and international league tables, but also by the many prizes and awards given to its individuals, both academic staff and students. It also has a strong record for generating spin-outs and IP. The Chemistry Head of Department is Professor Mark Brouard.

The vision for Oxford Chemistry is as follows:

> ***Our vision is to be a world leading department of Chemistry in scholarship, research, teaching and learning as reflected in external recognition, rankings and measures. We aim to be an outward-looking Department engaging with other disciplines, with industry and with a range of other external stakeholders from alumni to government. We also aim to be a thriving academic community in which all staff and students enjoy a stimulating, respectful and congenial working environment that is sympathetic to their individual needs and enables them to make the most of their talents and abilities.***

The University of Oxford is a member of the Athena SWAN Charter and holds an institutional Bronze Athena SWAN award. The Department was awarded a **Silver Athena SWAN Award** in September 2015. Athena SWAN recognises the Department's commitment to addressing

gender inequalities, tackling the unequal representation of women in science, and to improving career progression for female academics. This charter was extended in 2015 to include women in all areas of academia.

Research in Chemistry

As might be expected for a department of its size, Oxford has world class research across a very broad range of chemistry and at its interfaces with other disciplines. In all areas the department seeks to advance fundamental science and knowledge with the expectation that such advances will lead to a step change of impact in applications and commercial exploitation, as has been demonstrated in many recent instances. Activity can be roughly grouped into a number of broad 'themes', although there is much overlap, and many academics work in more than one area.

- **Chemistry at the interface with biology and medicine**
- **Sustainable energy**
- **Catalysis**
- **Advanced functional materials and interfaces**
- **Innovative measurement and photon science**
- **Synthesis**
- **Theory and modelling of complex systems**
- **Kinetics, dynamics and mechanism**

The Department's research strategy is to build on strength in these areas, encouraging collaboration that is not limited by sectional or departmental boundaries.

Oxford Chemistry collaborates with departments across the University, from Engineering to Geography, from Plant Sciences to Oncology and Cardiovascular Medicine, and with local hospitals and with facilities such as Diamond and MRC Harwell, and has close links with academia and industry in the UK, Europe and the rest of the world. The total value of Oxford Chemistry's external research grant portfolio is currently over £90m. The main sources of funding include the following:

- UK Research Councils (EPSRC, BBSRC, STFC and MRC),
- European Research Council (ERC),
- Cancer Research UK,
- Royal Society,
- British Heart Foundation,
- Leverhulme Trust, and
- NIH.

There is also research funding and partnerships with:

- the King Abdulaziz City for Science and Technology (KACST),
- AstraZeneca UK,

- Johnson Matthey,
- GlaxoSmithKline,
- BP,
- Unilever,
- Siemens,
- SCG Chemicals (Thailand),
- Galapagos SASU,
- UCB Celltech,
- Eli Lilly,
- Pfizer,
- Oxford Nanopore Technologies Ltd and
- Oxford Medical Diagnostics, among many others.

The Department has two EPSRC funded doctoral training centres in Theory and Modelling of Chemical Systems and in Synthesis for Biology and Medicine.

Many grants are held in collaboration with researchers from other University departments, including Biochemistry, Physics, Engineering and the Structural Genomics Consortium.

The Department seeks to continue to increase and diversify its research income taking advantage of the breadth of such potential income sources for the discipline of Chemistry, and of its potential for very strong interdisciplinary interactions.

Chemistry Research and Teaching Facilities

Oxford Chemistry occupies three major buildings in the University's science area, including a modern RIBA award-winning dedicated research facility. Continuing to update the teaching and research facilities across the Department is a high priority, and plans are well advanced for another new research building and new teaching labs. The Department has an unrivalled range of spectroscopic and analytical equipment across all the disciplines of chemistry.

For more information please visit: http://www.chem.ox.ac.uk/

Chemistry Support Services

To support the Teaching and Research in the Department, there are a number of administrative functions including Finance, Human Resources, Facilities, Information Technology, Student Administration, Health and Safety, Communications and Alumni Relations.

MPLS Division

The academic administration of the University is conducted through four divisions (Humanities, Social Sciences, Mathematical, Physical and Life Sciences, and Medical Sciences). The Mathematical, Physical and Life Sciences Division consists of ten constituent departments: the

Department of Chemistry, the Department of Computer Science, the Department of Earth Sciences, the Department of Engineering Science, the Department of Materials, Mathematical Institute, the Department of Physics, Department of Plant Sciences, Department of Zoology and the Department of Statistics. The division provides a framework for interdisciplinary teaching and research. There are also links with the Medical Sciences Division.

For more information please visit: http://www.mpls.ox.ac.uk/

How to apply

Before submitting an application, you may find it helpful to read the 'Tips on applying for a job at the University of Oxford' document, at www.ox.ac.uk/about/jobs/supportandtechnical/.

If you would like to apply, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. Please provide details of two referees and indicate whether we can contact them now.

You will also be asked to upload a CV and a supporting statement. The supporting statement should explain how you meet the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants).

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** on the closing date stated in the online advertisement.

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing departments.

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments)

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk. Further help and support is available from www.ox.ac.uk/about_the_university/jobs/support/. To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will be notified of the progress of your application by automatic emails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all emails.

Important information for candidates

Pre-employment screening

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. We advise all applicants to read the candidate notes on the University's pre-employment screening procedures, found at:

www.ox.ac.uk/about/jobs/preemploymentscreening/.

The University's policy on retirement

The University operates an employer justified retirement age for all academic and academic-related posts (grade 6 and above), for which the retirement date is the 30 September immediately preceding the 68th birthday. The justification for this is explained at: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revaim/.

For **existing** employees any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revproc/

There is no normal or fixed age at which **support staff** in posts at **grades 1–5** have to retire. Support staff may retire once they reach the minimum pension age stipulated in the Rules of the pension scheme to which they belong.

Equality of Opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

Benefits of working at the University

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool.
See: www.club.ox.ac.uk and www.sport.ox.ac.uk/oxford-university-sports-facilities.

Information for international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University's International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor.
See: www.internationalstaffwelcome.admin.ox.ac.uk/

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk/

Childcare

The University has excellent childcare services with five University nurseries, as well as University-supported places at many other private nurseries.
For full details including how to apply and the costs, see www.admin.ox.ac.uk/childcare.

Family-friendly benefits

The University subscribes to My Family Care (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University's Staff Disability Advisor.

Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at www.admin.ox.ac.uk/eop/inpractice/networks/

Other benefits

Staff can enjoy a range of other benefits such as free visitor access to the University's colleges and the Botanic Gardens as well as a range of discounts.
See www.admin.ox.ac.uk/personnel/staffinfo/benefits