Swire Group

2010
Swire Scholarship
Information Pack

Administered by BRITISH COUNCIL 英國文化協會

Swire Group

Regulations For the 2010 Swire Scholarship

The **Swire Group** is a major, well established international group of companies with business interests in property, aviation, beverages, marine services, trading & Industrial, cold storage, agriculture and road transport. The Group has been operating in Taiwan since 1948 and is now involved in a wide range of activities employing over 3,000 persons.

University College, Oxford, the first of Oxford's Colleges to be endowed, in 1249, is located on a central site on Oxford High Street. It has in excess of 200 graduate students in residence and attaches great importance not only to the academic excellence for which the University of Oxford is renowned but also to the contributions that students make to College life.

The Swire Group of Companies is pleased to announce the availability for the 18th year of the prestigious Swire Scholarship for a D. Phil at University College Oxford.

A. Regulations

1. The Swire D. Phil Scholarship is tenable at University College Oxford for a three year period of research, beginning in October 2010, leading to the award of a D. Phil degree.
2. The Scholarship applies to the following areas of study:

   Biochemistry, Chemistry, Computer Science, Engineering, Earth Sciences, Immunology, Mathematics, Medicine, Physiology, Physics, Psychology
3. The Scholarship is open to all candidates with an excellent undergraduate record of study, who will have completed by 2010 a Masters' degree relevant to one of the areas of study listed in 2 above.
4. Applicants will normally work under the supervision of one of the Fellows of University College, but in exceptional circumstances may be supervised by another member of the University. Scholarship candidates should refer to the attached list of Fellows and their research interests, It is essential that candidates communicate with their potential supervisor, preferably by e-mail, to explore the possibility of working together. It is expected that such communication will have taken place before the application is submitted.
5. Consideration for the Swire Scholarship is restricted to candidates who have been offered a place for postgraduate study at the University of Oxford and who have designated University College as their first-choice college. Graduate students are admitted in the first instance by a University department (the 'University Admitting Body', or 'UAB'). Applicants for the Swire Scholarship must therefore have applied direct to the University of Oxford for a place on

the programme of study of their choice, in accordance with the standard application procedure, naming University College as their first-choice college; the full details of the application procedure can be found in the University's Graduate Prospectus and on the University website.(www.ox.ac.uk/postgraduate).

Applications for a place on a graduate programme must be submitted to The Graduate Admission Office, University Offices, Wellington Square, Oxford, OX1 2JD by the due date specified for the relevant deadline, which will normally be the second application deadline, which has a **closing date of 8 January 2010 for Medical Sciences and 22 January 2010 for other subjects.** Please note that the closing dates for a place on a postgraduate course antedate the closing date for the Swire Scholarship.

6. The Scholarship will cover the following expenses:

- Economy class air fares, between Taiwan and London, will be provided to the scholar at the beginning and at the end of the scholarship period.
- Tuition and research fees for three years.
- Living expenses to the value of £13,300 per annum for a single scholar only, or £16,650 per annum for a married scholar (accompanied by spouse)

7. All applicants must be Taiwan nationals. Applicants should have the intention of returning to Taiwan after the completion of their studies to pursue a career in business, government or in a recognised profession.
8. It is a condition of the award of a Swire Scholarship that the selected candidate submit to the Swire Educational Trust a report, in English about his/her experience of life and study at University College.

B. Application Process and Calendar

1. Your application for the Swire Scholarship should consist of:

- A completed application coversheet (the University College scholarship coversheet)
- Your Curriculum Vitae
- English transcripts
- Graduation certificate
- Evidence of English ability: IELTS
- Research proposal, including details of the proposed supervisor
- Two reference letters

Please submit your application to the **Admissions Administrator, University College, Oxford, OX1 4BH by 22 February 2010.**

2. Candidates must have taken the IELTS test. Applicants who would like to register for the test, please refer to the British Council Taipei.

3. Further information on briefings on the Swire Scholarship will be posted on this website in

early November 2009.

4. Additional information on studying in Britain and the Swire Scholarship Scheme is available from the British Council Taipei.

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   University College Oxford: www.univ.ox.ac.uk

SWIRE GRADUATE STUDENTSHIP

The following list describes the research interests of the Science Fellows of University College. Candidates are encouraged to correspond with individual Fellows, by mail or e-mail, in order to discuss projects that may be undertaken with them.

Biochemistry

Dr C J Pears	Nuclear metabolism, in particular the mechanism and control of DNA repair and the role of epigenetic chromatin modifications in regulating transcription during development. Genetic, molecular and cell biological approaches are used to study these processes in a genetically tractable eukaryotic micro-organism, Dictyostelium discoideum

Bioinformatics

Prof J Hein	Molecular Evolution, Molecular Population Genetics, Bioinformatics and Comparative Genomics. Major projects in our group at present are: i) Stochastic models of sequence evolution describing insertion/deletions events as a foundation of statistical analysis of alignments; ii) the analysis of sequence data experiencing recombinations and gene conversions; iii) the simultaneous annotation (i.e. protein and RNA gene finding) of several relation genomes; iv) the analysis of viral evolution - measurements of rates and the nature of selection.

Chemistry

Prof D E Logan — Research centres on developing quantum many-body theories for a variety of experimentally relevant phenomena relating to electronic and magnetic properties of condensed matter; encompassing both the solid state, as well as topical nanoscale systems such as quantum dots and molecular electronic devices. The work is interdisciplinary, spanning the borders of chemistry and physics; prospective students may have a background in either field. Further information at:

http://www.chem.ox.ac.uk/researchguide/delogan.html

Prof S C E Tsang — Research on both fundamental and applied aspects in *Novel Chemistry Materials and Catalysis*; Work involves synthesis, testing and characterisation of novel solid state materials for a wide range of applications particularly in the areas of catalysis, sensor and bio-medicine. Uses of well-defined nanomaterials as building blocks for synthesis of functional materials including development of novel *core-shell* metal nanoparticles of controllable composition, size and morphology as new nanocatalysts; hollow carbon nanotube as nano-scale test tube for separation, storage, magnetic, electronic applications; immobilized biomolecules on nanoparticles as new sensors, etc. In catalysis area, we work on new catalytic techniques for sustainable energy systems (fuel cells *catalysts*, photocatalytic solar cells, biomasses to fuels, hydrogen storage, cleaner catalytic combustion, carbon dioxide activation, capture, storage and subsequent conversion into useful chemicals/materials (reduction in carbon emissions), etc. Further information at: **http://www.chem.ox.ac.uk/researchguide/scetsang.html**

Dr M D Smith — Synthetic Organic Chemistry: My group is engaged in the development of new and useful reactions in synthetic chemistry, their application in the synthesis of natural

products, and their use as a lynchpin for multidisciplinary research.

The research themes that we are interested in are broadly outlined below:

1. The development of design principles for the synthesis of unnatural materials that adopt well-defined secondary structures in solution, and the use of these minimal model systems to probe unusual non-covalent interactions such as C-HŠO hydrogen bonds.

2. The design and exploitation of novel catalysts for asymmetric transformations. We are interested in their application to challenging synthetic processes for which there is currently no general solution.

3. The investigation of cascade routes to polycyclic alkaloids from linear precursors in which architecturally complex carbon skeletons are rapidly assembled utilizing the chemistry of cyclic enamines and imines.

4. The development of asymmetric variants of electrocyclization reactions. These are challenging transformations for which there is currently no solution.

Computer Science

Prof A W Roscoe	The theory of concurrency and its applications; related automated tools. Computer security: protocol analysis, information flow and security in pervasive/ubiquitous/peer to peer networks.
Dr A D Ker	Theory and practice of information security, particularly information hiding: steganography and steganalysis, digital watermarking, and digital media forensics. Current projects include creation and refinement of new features for machine learning steganalysis, the square root law of capacity, and steganography in multiple covers.

Earth Sciences

Prof G M Henderson — The development and application of geochemical tools to better understand Earth's surface systems. Particular interests are in the climate of the last half million years, ocean circulation on similar timescales, and on the chemistry or seawater.

Engineering

Dr S Collins — Analogue Integrated Circuit design. Particular interests: High dynamic range digital cameras, cameras to extract colour information for object recognition, analogue interfaces for MEMs systems. Anyone who would like further details about these areas or would like to suggest a topic of their own should contact Dr Collins by e-mail.

Dr T Povey — Dr Povey's research is related to turbomachines, and particularly the turbine stages of large civil turbofan engines. His current research includes studies of unsteady interactions in gas turbines; turbine aero-thermal interactions; combustor hot-streak migration; turbine instrumentation; and the design of transient experimental methods to replace large experimental turbine rigs.

Mathematics

Prof M J Collins — Algebra: Algebra, in particular finite group theory and representation theory

Dr P D Howell — Industrial applied mathematics, in particular fluid mechanics, partial differential equations and perturbation methods. Further information at: http://www.maths.ox.ac.uk/ociam/people/faculty/howell.shtml

Medicine & Physiology

Dr K L Dorrington — Studies on the physiology of the lungs and cardiovascular system, with particular relevance to exposure to low levels of oxygen in humans at high altitude, exposure to low levels of oxygen in patients with lung disease, and in patients undergoing anaesthesia and surgery. Recent studies have concentrated on the effects in healthy humans of pharmacological agents, including trimetaphan, dexamethasone and hydralazine, on how the body responds to hypoxia. Current studies are focusing on the effects of decreasing or increasing iron levels in the body to influence the Hypoxia-Inducible Factor transcription pathway. Further information about the work can be obtained from the web site of the Department of Physiology, Anatomy and Genetics: http://www.dpag.ox.ac.uk_

Dr T Sharp — Preclinical studies on the physiology and pharmacology of brain neurotransmitters in relation to the cause and treatment of psychiatric disorder, and especially depression. Current projects include i) molecular studies of the impact of immune status on neurotransmitter function, ii) electrophysiological and neuroanatomical studies of novel mechanisms of neurotransmitter control, iii) modelling neurotransmitter function using non-invasive imaging methods. Further information at http://www.pharm.ox.ac.uk

Clinical Medicine

Dr S J Golding — The clinical applications of computed imaging techniques, especially in relation to malignant disease, cranio-facial surgery, and reproductive medicine; also data processing and 3D-imaging and the investigation of disorders of deglutition. Dr Golding also provides a research programme in craniofacial and gynaecological imaging, and computed tomography.

Physics

Dr P E G Baird	Optical metrology using femtosecond combs; frequency standards, and atomic clocks. Laser spectroscopy of atoms including optical pumping and laser cooling. Electro- and magneto-optic phenomena in atomic vapours, including nonlinear effects. Tests of discrete symmetries (i.e. Parity, Time Reversal and Charge Conjugation).
Prof R J Nicholas	New semiconductor heterostructures and carbon nanotubes and studies for both fundamental physical properties and possible device applications. Experimental techniques include electrical and optical measurements at very low temperatures in a laboratory which produces the highest magnetic fields available in Europe (70T).
Dr J F Wheater	Statistical mechanics and quantum field theory. Boundary effects in logarithmic conformal field theories, supersymmetric and bosonic Yang-Mills integrals, dynamics of multi-critical two dimensional gravity models.

Psychology and Neuroscience

Dr N Yeung	The cognitive neuroscience of attention and executive control; neural mechanisms of decision making and learning; feedback and error processing; EEG and fMRI methods; computational modeling of cognitive processes. Further information at: http://psyweb.psy.ox.ac.uk/acc/pages/nickyeung.html

Contact e-mail addresses for Science Fellows of University College:

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Prof R. J. Nicholas

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