Durham University

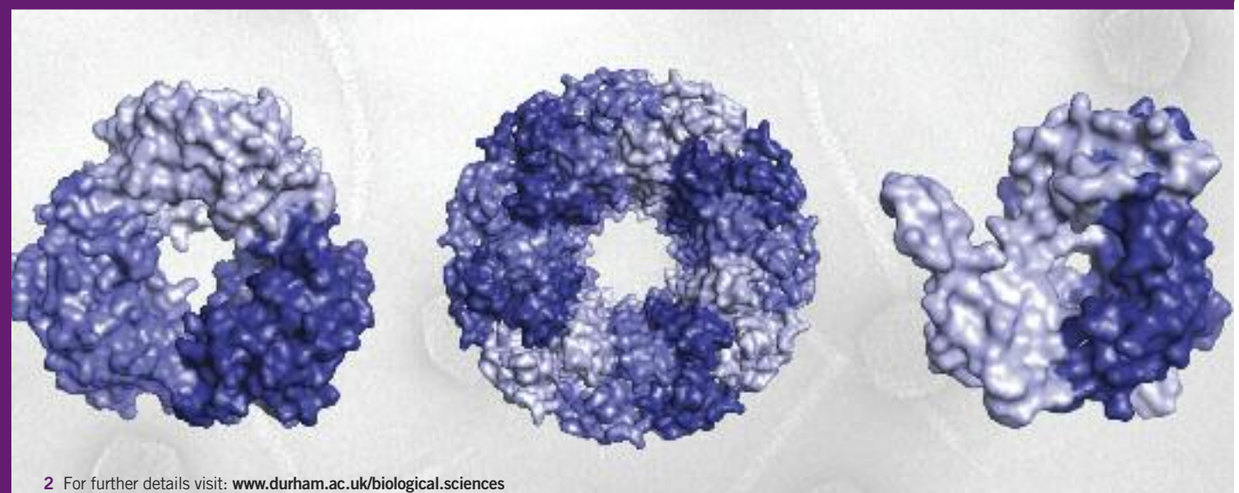
Biological & Biomedical Sciences

Ranked 5th

for Biological and Biomedical Sciences by *The Independent Complete University Guide 2012.*

Postgraduate study opportunities 2012/13

World-class research degrees at MSc and PhD



90%
of our research was rated as being of international quality, with 50% excellent or world-leading.

Biological & Biomedical Sciences

The School of Biological and Biomedical Sciences is housed in modern, purpose-built accommodation, with high-quality research facilities. We foster an active, lively and welcoming environment where postgraduate research students work alongside both post-doctoral research fellows and academics.

ABOUT THE SCHOOL

The School is research-led, and in the 2008 Research Assessment Exercise, 90% of its research was rated as being of international quality, with 50% excellent or world-leading. Ongoing appointments continue to strengthen our research and training expertise at the frontiers of biological knowledge. We have approximately 70 postgraduate students, with a strong international element, who contribute to a dynamic research community.

Research in Biological and Biomedical Sciences covers the whole spectrum of modern biology, biochemistry, molecular biology, structural biology, microbiology, cell biology, stem cells, genetics, physiology, molecular ecology, evolution, behavioural ecology, environmental change biology, modelling and conservation. Much of the research has an applied aspect in applications such as biomedicine, crop improvement and wildlife conservation.

Interdisciplinary research involving collaborations in the university sector and with industry, national research institutes and other organisations such as NHS Trusts are a strong feature.

The School attracts a high level of research funding, and offers an extensive range of facilities, including confocal microscopy and imaging, electron microscopy, protein crystallography, transgenic organisms, state-of-the-art mass spectrometry, cell culture, 'omics' technologies, controlled climate suites, ancient DNA and remote monitoring.

LINKS WITH RESEARCH INSTITUTES AND CENTRES

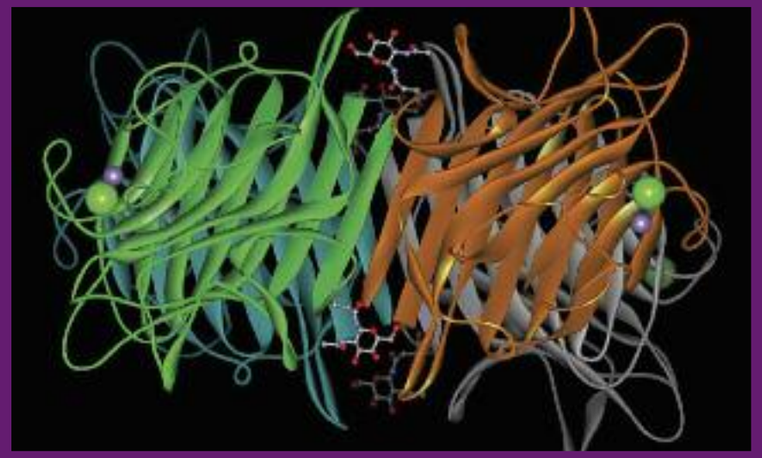
Research in healthier ageing aligns with the North East Stem Cell Initiative, a project which has been jointly developed with biomedical scientists at Newcastle University. Work on food security and alleviating poverty is developed through Durham Centre for Crop Improvement Technology, which has strategic alliances with key academic, government and industrial agencies. Bioenergy research is conducted through the Durham Energy Institute. Multidisciplinary research is a major strength within the School with interests in climate change developed with colleagues in the Geography Department through the Institute of Hazard Risk and Resilience, in cell biology, biochemistry and physiology through the Biophysical Sciences Institute, and in evolutionary biology with the Departments of Archaeology and Anthropology through the Centre for the Coevolution of Biology and Culture.

POSTGRADUATE RESEARCH DEGREES

- MSc by research
- PhD
- Full-time and part-time study.

Please consult the School's web page for further information: **www.durham.ac.uk/biological.sciences/postgraduate**

Postgraduates make a significant contribution to our research; they are encouraged to integrate into existing research laboratories and are full members of the School's research community.




POSTGRADUATE RESEARCH FACILITIES AND ACTIVITIES

The School of Biological and Biomedical Sciences has a comprehensive graduate programme that includes:

- A training program including lecture courses on safety and specialised research techniques (see below)
- Weekly School and research discussion group seminars, including a seminar series dedicated to post-graduates
- Regular progress reports and feedback from thesis committees
- Second year student poster presentations
- Final year oral presentations
- Research group activities
- Undergraduate demonstrating
- Active participation at local, national, and international conferences.

The extensive state-of-the-art departmental research facilities and instrumentation provide support across the spectrum of research activities. For more information, please visit **www.durham.ac.uk/biosciences/local/services/corefacilities**

POSTGRADUATE TRAINING AND PERSONAL DEVELOPMENT

Together with the School of Biological and Biomedical Sciences, the University runs an integrated programme of training courses, which will form part of your degree. This includes:

- Active training aimed at nurturing good practical skills and experimental technique
- Academic programmes to raise awareness of contemporary research topics within Biological and Biomedical Sciences and related subjects, particularly cross-disciplinary areas
- Complementary Skills – written and verbal communication, research management, safety and equality issues.

Postgraduate students are encouraged to present their findings at research meetings, both within the School as part of their training programme, and at research conferences at home and abroad.

Many of the School's postgraduates have proceeded to distinguished careers in academia, government and industry, and the School aims to prepare its postgraduates for different career paths without compromising the quality of the research programme, which remains the focus of the degree routes.

MAIN AREAS OF RESEARCH

Postgraduate study can be undertaken across all the major taxa employing molecular, cellular and systems based approaches. Research in the School is broadly focused around five research themes (see below) which address major biological questions relating to:

- Stress, signalling and environmental adaptation
- Biomolecular interactions
- Evolution, ecology and behaviour
- Cell structure, function and development.

These themes include named discussion groups, which involve the regular meeting of interested staff, sometimes associated with seminar series, journal clubs and similar activities. The named groups and their key points of discussion are as follows:

Adaptation and environment:

- Environmental change biology
- Palaeobiology
- Molecular ecology and evolutionary biology
- Plant ecology and climate interactions in tundra regions
- Conservation biology
- Exploitation and management of populations
- Behavioural ecology and physiological ecology of animals
- Statistical and mechanistic models of ecological and evolutionary processes.

Biomolecular interactions:

- Metabolic regulation of the bioactivity of natural products and synthetic compounds in plants
- Organisation and regulation of plant and protozoan metabolic pathways, especially lipid metabolism
- Biomolecular interactions in infectious pathogens
- Interaction of herbicides with plant enzymes
- Bioenergy from algae
- Molecular bases of plant-insect interactions and novel protein-based insecticides
- Extracellular ATP in plants
- Bacterial and bacteriophage recombination and DNA repair
- Metalloproteins and metal-sensing
- Antibiotic resistance mechanisms
- X-ray crystallography of membrane proteins and DNA binding proteins.

Cell structure:

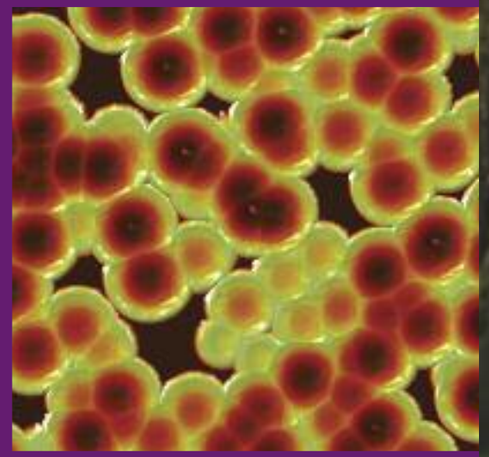
- Membrane repair
- The nuclear envelope and nuclear transport
- Protein folding in the endoplasmic reticulum
- Regulation of the plant microtubule and actin cytoskeleton and its potential role in biotechnology
- Developmental genetics of plants and its biotechnological application
- Defects in protein folding involving the cytoskeleton and chaperones
- Cell differentiation in the epithelium.

Development and regeneration:

- Integrative neuroscience
- Membrane repair
- Embryology and development
- Degenerative diseases
- Ageing processes
- Stem cells, cell differentiation and regeneration.

Stress and signalling:

- Signal transduction molecules regulated by inorganic ions
- Molecular and biochemical responses of plant cells to abiotic stress
- Disease resistance signalling in plants
- Signalling involving calcium and reactive oxygen species
- Interorganellar stress signal transduction mechanisms
- Novel Central Nervous System drug targets
- Unfolded protein response
- Gene regulation in response to environmental and developmental cues.



RECENT THESIS TITLES

- "A molecular analysis of the microtubule-associated protein MAP65-1"
- "Modelling the surface energetics of patchy arctic tundra snowcover"
- "Studies on sterol biosynthesis mutants of *Arabidopsis*"
- "Studies on muscular dystrophy-associated genes"
- "Orf protein modulates phage and bacterial pathways of genetic recombination"
- "The relationship between developmental stability, genomic diversity and environmental stress in two cetacean species: the Harbour Porpoise *(Phocoena phocoena)* and the Bottlenose Dolphin *(Tursiops truncates)*".

TYPICAL ENTRY REQUIREMENTS FOR RESEARCH DEGREES

- PhD: 2.1 or equivalent degree, or an MSc, in a relevant subject area
- MSc: 2.1 or equivalent degree in a relevant subject area.

ENGLISH LANGUAGE REQUIREMENTS

- IELTS of 6.5 or equivalent.

We welcome applications from holders of international qualifications. For advice on the equivalency of international qualifications and further information on English language requirements, please contact our International Office on **international.office@durham.ac.uk** or visit our website at **www.durham.ac.uk/international**

FUNDING OPPORTUNITIES FOR POSTGRADUATE RESEARCH STUDENTS

- Research Council studentships – quota allocations (BBSRC, NERC)
- Studentships obtained by individual supervisors – various sources.

The University also has a range of funding opportunities for postgraduate students. To find out what support you could be eligible to receive see our online funding database at **www.durham.ac.uk/study/postgraduate/fees/search**

CAREERS AND EMPLOYABILITY

For further information on career options and employability, including the results of the Destination of Leavers survey, student and employer testimonials and details of work experience and study abroad opportunities, please visit **www.durham.ac.uk/biological.sciences/postgraduate/employability**

Name:
Rushdie Abuhamdah

Home Country:
Jordan

Postgraduate Course:
PhD Neuropharmacology

I was attracted to Durham as my sister is a Durham graduate and when I asked her about it she said: "If I were to choose again, I would still choose Durham." This, combined with the fact the School of Biological & Biomedical Sciences is a well recognised research-intensive department with consistent top ranking, made Durham the choice for me.

I have thoroughly enjoyed working under the guidance of an academically-distinguished supervisor who has given me a lot of support and motivation. As a postgraduate student in Durham I am fortunate to have two families: my department which is my academic family and my college family, which is another intellectual and social community, giving me the chance to engage with academics and fellow students across many disciplines and from diverse backgrounds.

A PhD from Durham University is recognised and valued around the world, it will definitely give me an advantage in pursuing a research career in some of world's finest organisations.

Durham is truly an international university that makes students feel at home, giving them a chance for an extraordinary academic and cultural experience.

Durham University

Contact details

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