

CARDIFF
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Biomedicine International Summer School

Hosted by the School of Biosciences

15 - 29 July, 2017

www.cardiff.ac.uk/study/international/summer-schools

Cardiff University School of Biosciences is one of the largest life science departments in the UK with an international reputation for its teaching and research. With two Nobel Prize winners and numerous Fellows of the Royal Society contributing to the internationally renowned research programmes here in the School of Biosciences, the Biomedicine curriculum is therefore underpinned by our cutting edge research which addresses global health issues such as dementia, cancer, infectious diseases and heart disease. The Summer School offers a unique experience in sampling one of the top research-driven biomedical curricula in the UK in the beautiful setting of Cardiff city centre.

Overview of the programme

The summer school programme is designed to provide you with an introduction to biomedical and biological research and the crucial role it has to play in developing solutions to modern day challenges on health care, climate and global resources.

The academic programme consists of a series of lectures delivered by lecturers and professors who are authoritative figures in the fields that they teach. These lectures will introduce you to the topics of cancer biology, respiratory disease, cardiovascular disease, molecular biology of pancreatic disease, neurological disorders, musculoskeletal disease, tissue engineering and the current research activities in these areas in Cardiff.

A number of workshops will also be available, which focus on subject-specific skills such as bioinformatics as well as transferable skills such as effective scientific communication, providing opportunities to hone your English language skills. A hands-on laboratory practical in musculoskeletal biology is also part of this summer school which provides training in many widely employed laboratory techniques in biomedicine including Polymerase Chain reaction, polyacrylamide and agarose gel electrophoresis and Western blotting.

Research experience provision is also a major component of this event. Participants will be able to spend time with researchers and observe the daily scholarly activities in laboratories that are conducting ground-breaking research in tackling key global challenges in cancer, engineering living systems,

mechanisms of life and disease, neuroscience, sustainable planet and biodiversity and new advance technologies. Through this exercise, participants will have the opportunity to appreciate the workings of a UK research institution.

The summer school is therefore suitable for current science undergraduates in their last two years of their Bachelors degree programme or recent graduates from a life science degree course especially for those who are considering undertaking further studies via either a Masters or PhD programme. The Biomedicine International summer school also incorporates a social/recreational programme with the aim of introducing participants to contemporary British society and culture. A number of visits to cultural and recreational facilities in the UK will be included in the programme. The summer school is therefore also a good opportunity to meet new friends and to build up a rapport with other participants through work and recreational activities.





Learning outcomes

Knowledge and understanding

After attending the BLS International summer school, you should be able to:

1. Discuss current concepts and understanding of a number of common human diseases including cancer, respiratory, pancreatic and musculoskeletal disorders.
2. Describe the principle of tissue engineering and discuss current perspectives in this field of research.
3. Develop further insights into contemporary areas of biomedical research and map research activities to population and social needs.

Practical scientific skills

1. Perform scientific procedures including gel electrophoresis, polymerase chain reaction and Western blotting.
2. Manage, summarise, analyse, display, present, and interpret laboratory data.
3. Solve mathematical calculations in a scientific context.
4. Present data in an appropriate manner, i.e. tabulated or graphical.

Academic skills

1. Use and evaluate information from a variety of sources including the internet (e.g. Pubmed, Scopus, web of knowledge) and library facilities.
2. Demonstrate the effective use of retrieved information, including using evidence to support your statements and arguments.
3. Communicate scientific information orally in a PowerPoint presentation in English.
4. Critically analyse scientific research.



Tuition fees

The total cost of the course is £1,495.

The tuition fee includes: accommodation for the duration of the course, 10 meals per week (breakfast and lunch, Monday to Friday), pick up and drop off from Heathrow Airport on fixed dates (pick up is on 15th July and drop off is on 29th July), excursions organised by Cardiff University, materials and reagents used in laboratory practical sessions.

Admissions requirements

Applicants should either be current science undergraduates in their last two years of their Bachelor's degree programme or recent graduates from a life science degree course.

English language proficiency: students should provide evidence of English language proficiency to a minimum level equivalent to IELTS 5.5. Other forms of English proficiency test certificate will also be considered. Students who do not possess any formal proof of their English language skills will require a letter of recommendation from an academic referee or English teacher.

Preliminary schedule (subject to change)

Saturday 15 July		Arrival in Cardiff
Sunday 16 July		Free time/social events
Monday 17 July	09:15 - 10:00	Welcome talk and introduction to the programme
	10:00 - 11:00	Cancer Biology: mechanisms and therapeutics I
	11:00 - 11:30	Short break
	11:30 - 12:30	Cancer Biology: mechanisms and therapeutics II
	12:30 - 14:00	Lunch
	14:00 - 17:00	Scientific communications workshop - journal club
Tuesday 18 July	09:15 - 10:00	Introduction to the College's Masters programmes
	10:00 - 11:00	Air pollution & lung disease I
	11:15 - 12:15	Air pollution & lung disease II
	12:15 - 14:00	Lunch
	14:00 - 15:00	Cardiff neuroscience presentation
	15:00 - 16:00	Scientific communication - allocation of research titles
Wednesday 19 July	09:30 - 10:30	Tissue engineering
	10:30 - 11:30	Molecular mechanisms of pancreatic disorders
	11:30 - 12:15	Cardiff molecular biology research
Thursday 20 July	09:30 - 11:00	Mechanism, prevention and treatment of cardiovascular disease
	11:00 - 12:00	Acute lymphoblastic leukaemia treatments and acute pancreatitis, molecular mechanisms and potential therapeutic targets
	12:00 - 12:45	Biological research in Cardiff
	12:45 - 14:00	Lunch
	14:00 - 17:00	Research experience
Friday 21 July		Visit to the National Botanical Garden of Wales
Saturday 22 July & Sunday 23 July		Free time and social programme
Monday 24 July	09:00 - 12:30	Bioinformatics workshop
	12:30 - 13:30	Lunch
	14:00 - 17:00	Student presentations and feedback
Tuesday 25 July	09:00 - 10:00	Disease mechanisms of osteoarthritis
	10:00 - 11:00	Introduction to practical workshops
	11:00 - 12:30	Practical workshop I
	12:30 - 13:30	Lunch
	13:30 - 18:00	Practical workshops 2 & 3
Wednesday 26 July	09:00 - 12:30	Research experience
Thursday 27 July	09:00 - 12:00	Practical workshop 4
	12:30 - 14:00	Lunch
	14:00 - 17:00	Research experience
Friday 28 July	09:00 - 12:00	Research experience
	12:00 - 13:00	Lunch
	13:00 - 14:30	Tour of Cardiff University Brain Research Imaging Centre
	15:00 - 16:00	Reflection, course feedback and evaluation
	Evening	Closing ceremony
Saturday 29 July		Departure

If you have any questions or need further information, please email
internationalsummerschool@cardiff.ac.uk