

# Newsletter 2018

## IBERS Institute of Biological, Environmental and Rural Sciences

*Biochemistry, Genetics and Microbiology*

### List of Courses

#### BSc

Biochemistry  
 Genetics  
 Genetics & Biochemistry  
 Microbiology  
 Life Sciences

#### MBiol

Biochemistry  
 Microbiology

#### Interested?

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### New Organic Chemistry Module

As part of our ongoing developments to enhance the content of our degree schemes, the C700 Biochemistry and CC47 Genetics and Biochemistry degree schemes have been boosted this year by the addition of a new 20 credit first year module on Molecular Biochemistry. Spanning both semesters, the first half of the module focuses on biophysical chemistry, including reaction kinetics, thermodynamics and redox chemistry. The second half of the module explores organic chemistry in detail, covering reaction mechanisms and synthetic chemistry. Four practicals give students the opportunity to gain hands-on experience synthesising their own chemicals and characterising their properties.

Next year the same degree schemes will be upgraded with the expansion of the year two Proteins and Enzymes module from 10 credits to 20 credits. The new version of the module will incorporate more practicals and workshops, and will allow a more in-depth study of these most important classes of molecules.

### Degree Schemes Accredited by the Royal Society of Biology



The Royal Society of Biology (RSOB) is the learned society and professional association for practising biologists in the UK, and it offers an

accreditation programme for degrees in the Biological Sciences. Accreditation is acknowledgement that a degree scheme meets a set of overarching criteria, ensuring that graduates from accredited schemes are equipped with the knowledge and skills required of biologists, making them highly employable both within and beyond their chosen field.

During 2017 representatives of the RSOB came to Aberystwyth to evaluate our biological sciences degrees, meet staff and students, and see the facilities available to students studying on our courses. As a result of their assessment, all 10 of our 3 year BSc degrees in the Biological Sciences have received RSOB accreditation, including BSc Microbiology (C500), BSc Biochemistry (C700), BSc Genetics (C400) and BSc Genetics and Biochemistry (CC47).

### Vacation Studentship awarded to Microbiology Undergraduate

For the third year running the Joy Welsh Educational Trust funded vacation studentships during the summer for IBERS students. Eleanor Furness, a second year Microbiology student spent 6 weeks in Dr Dave Whitworth's lab, isolating and studying microbes that kill the causative agents of food spoilage and infected wounds. During her project she isolated two novel myxobacteria from soil that belong to previously unknown bacterial species. In previous years Helen Clayton showed that the predatory bacteria she isolated from soil, were able to protect vegetables from decay by food pathogens, while Sara Mela studied the transmission of bacteria between plants by aphids.



A predatory organism isolated by Eleanor during her project, spreading from left to right across the images, consuming a prey bacterium as it goes (on the right-hand side in image A)

### Microbiology Society: Undergraduate Microbiology Prize 2017



The Microbiology Society is one of the largest of the learned societies in the UK, with a remit to support teaching and research in microbiology. The Society awards a prize to the best undergraduate at each of the UK universities where Microbiology is taught. This year's winner is Eleanor Furness who achieved the highest scores in her second year modules. Notwithstanding the kudos of winning this prize, there is a very useful cash award.

### Teaching Staff Appointments and Retirements



Prof Glyn Jenkins

This year sadly saw the retirement of Glyn Jenkins, Professor of Genetics. Glyn's work involved the development of chromosome painting methods, in which specific sequences of DNA in plant genomes could be visualised down the microscope. Glyn taught on many Genetics modules and co-ordinated the Genetics degree at Aberystwyth and he has been replaced by Dr



Dr Dylan Phillips

Dylan Phillips, Lecturer in Genetics. Dylan completed his PhD at Aberystwyth (under Glyn's supervision) and has since continued his own research which focuses on understanding and manipulating DNA repair pathways in a range of key crop species.

## Sustainability Society Fungal Foray



Fungal foray attendees meeting up at IBERS building prior to the fungal foray

The annual fungal foray (18th October 2017) organised by Eve Goodwin of the Aberystwyth Sustainability Society and led by Dr. Gareth Griffith, Head of the Microbiology group at IBERS was particularly well-attended with almost 30 participants. The foray covered the mycological curiosities of the University campus and Penglais woods. Some forayers who attended in hope of finding edible fungi for their dinner were a little disappointed but a surprisingly large range of mushrooms and other fungi were spotted on the foray.



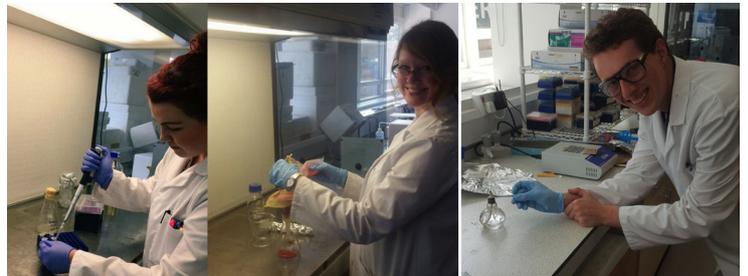
### Fungal Furniture

Matthew Brewer, now in the third year of his MBIol (Microbiology) studies, has been investigating how furniture or insulating materials can be made by growing fungi on waste materials such as straw or sawdust. The fungal mycelium binds the plant material into a solid mass which can often have impressive tensile strength or thermal insulation properties. Under the supervision of Dr. Gareth Griffith, Head of the Aberystwyth Microbiology Group, and in collaboration with the School of Architecture at Cardiff University (Dr. Yangang Xing and Prof. Phil Jones), Matthew has grown mycelial blocks using a variety of substrates (straw, Miscanthus leaves, sawdust etc.) with a dozen different fungi. Several of these were tested for their mechanical strength and thermal insulation properties. We would welcome any suggestions as to other types of material that could usefully be made from mycelial blocks.



### Summer placements for IBERS students

This summer three IBERS students were hosted at the Interdisciplinary Centre for Environmental Microbiology, giving them a chance to further their skills and try out a research career. Eleanor Furness, funded by a Microbiology Society Harry Smith Vacation scholarship, Elizabeth Joyce, funded by the Joy Welch Trust and Tom Davy, supported by an Aberystwyth University Walter Idris Bursary. Their supervisor Dr Arwyn Edwards, a Senior Lecturer and Director of the Interdisciplinary Centre said: "hands on experience of research gained by working on real research projects and as part of research teams can prove vital in helping students decide whether to continue in science".



From left to right: Eleanor, Elizabeth and Tom during their summer placements

### Undergraduates inspire young scientists

In March Aberystwyth hosted a three day festival of science as part of National Science and Engineering Week. Over 80 students and 20 staff from IBERS organised and staffed 15 hands-on activities for primary and secondary school children, with 1600 visiting from all over mid-Wales. Inspired by their experience, several of the students involved also formed the Biology Outreach Student Society (BOSS). Nearly 30 BOSS members have now been formally trained as STEM Ambassadors to deliver science activities at venues such as schools, eisteddfods and science festivals.



Biochemistry students organise a messy slime-making activity, and capture visitors in giant bubbles



For the latest news from Aber in these subject areas follow us on twitter @IBERSbio