UNIVERSITY OF BIRMINGHAM

SCHOOL OF BIOSCIENCES

The Mole

The Biosciences Newsletter | January 2023

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New Year issue

focus on Education

Editorial

Greetings from the *Mole* Editorial Team to all our readers. Hope you had a happy end-of-year break, and, of course, wishing for a wonderful 2023, ahead for all of us. For many of us, the first thing will be to 'recover' from Christmas, then to catch up with the 'in-box', before working up to full steam. Many of us too will have adopted New Year resolutions, so let's hope that these prove to be both realistic and worthwhile.

This issue of the *Mole* carries all the usual features, with the latest news, and a lot of stuff that should be useful and informative. The *Mole* doesn't attempt to be a list or a reference manual, neither does it cover everything that is going on. Rather, it hopes to catch your interest, be useful, and contribute to the School community. And this means that it is reliant on you to generate and provide the copy!

The focus this time is on Education, which, as our label suggests, is of prime significance to our mission. We are fortunate, because the case for the importance of bio-science has never been stronger. Whether it's understanding the state of this planet, the economy, or our health, be it physical, mental or biochemical, biology really is centre stage. Similarly, coping with threats, be they from viruses, toxins, global warming or others, is best done if the biology is understood. Hence what we research and what we teach is important, and we must never cease from shouting this loud and clear to our audience, our paymasters, our employers, our colleagues, the public, and, of course, to our present students. But it's not enough just to tell our students the facts. We have to make sure that they understand them and, in turn, grasp the big picture, so they are able to articulate knowledge to others, and also apply the knowledge in real life situations. For example, being able to produce a succinct report about a complicated topic, against both a time-deadline and a word/space-deadline, is just one of the many transferable skills that are hard-wired into our programmes, and this is one of the main reasons why our students do so well when they move on from here.

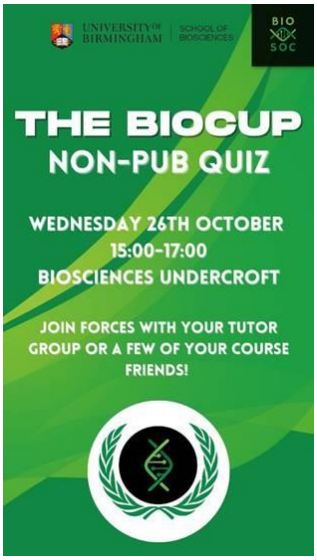
So please enjoy this issue, and all the best for 2023 and beyond!

LATEST NEWS: a new Annual Biosciences Conference…..this will be held on Thursday, 9th February 2023 in the Great Hall on the Edgbaston campus. Speakers from across our School will provide insight into research, education and impact activities that are ongoing. Lunch and refreshments will be provided. All Biosciences staff and PhD students are invited, and we look forward to seeing everyone!

BioSoc

President Kati Hume writes: Our biology society is all about community building within the School of Biosciences. We put on a range of social events throughout the year such as bake sales, pub quizzes, karaoke and bar crawls. We are all about inclusion, with a range of both drinking and sober events, so that everyone can get involved.

The BioCup is a large part of BioSoc, with Dr Mike Tomlinson playing a huge role in helping set up and run events. Biology and Biochemistry go head-to-head at quizzes, netball, and a sports day finale, with a celebratory BBQ to end the year. No prior experience is needed, just turn up and take part.

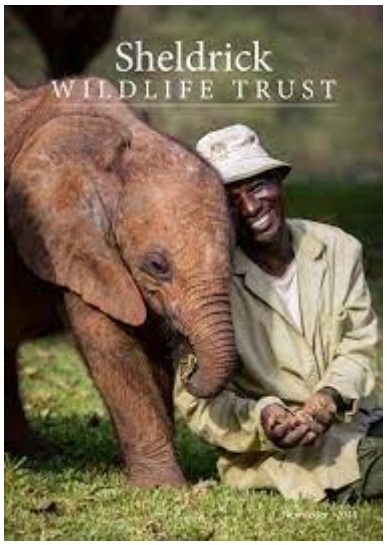


We are open to ideas for what you guys want to do so please do not hesitate to approach us! We can't wait to see you all at our events this year!!

- General enquiries biosoc@guild.bham.ac.uk
- Contact president Kati koh046@student.bham.ac.uk
- Instagram @biosocuob
- Facebook @University of Birmingham BioSoc

Our main event of the year will be the Easter Ball which will be held at the end of March 2023. It's an evening of dressing up, eating good food, and having a boogie!! It's a great way to celebrate the hard work over the year and enjoy an evening with your peers and lecturers (Mike loves a Jäger).

Our charity this year is the Sheldrick Wildlife Trust which works to protect elephants. They rescue orphan elephants with 316 orphans successfully raised. All our events will go towards raising money for the charity.



➔ Become a member today!

Keep in touch at regular Biosciences events:

Morning coffee & cake in the Undercroft: monthly from 10-11 am. Next sessions: Thur 12th January, Tue 7th February & Thur 2nd March

Biosciences Research Club: relaunched, organised by Dan Gibbs

IMI Lunchtime seminars: Tuesdays at 1 pm

Biosciences Lunchtime seminars: many Thursdays at 1 pm

Julia Myatt writes about School of Biosciences Specialist Labels

Researchers in the School of Biosciences are constantly pushing the boundaries to tackle the challenges that face us and the planet over the coming generations. To align with our research strengths, we offer a number of specialist degree pathways that enable students to focus their interests as they progress through their chosen programme. They are able to reflect on the modules they have taken and add a specific pathway (if they meet the requirements) at the start of the final year of their degree programme. These labels enable students to showcase a particular area of interest and skills that may act as a springboard to the next stage of their career. Here are the specialist labels that can be added to some of our main degree programmes, depending on the specific modules and number of credits taken (this includes the International Year, Year in Continental Europe, Placement Programme and MSci degree options).

The following labels may be added to our Biological Sciences degree programmes:

- **Human Health and Disease**: for students interested in understanding the fundamental mechanisms of biology that underpin our health and enable us to find solutions to injury and disease. This pathway may include modules such as 'Human Structure and Function', 'Cancer Biology' and 'Topics in Medical Biosciences'.
- **Microbiology and Infection**: from tackling the latest developments in human infectious disease research to understanding the basic biology of host-pathogen interactions in a range of environments, this pathway delves into research from humans to plants and fungi. This pathway may include modules such as 'Microbiology: Medicine, Environment and Industry' and 'Structures of Destruction: the Structural Biology of Pathogenicity'.
- **Genetics**: this pathway enables students to develop a clear focus on genetics, including classical genetics, gene regulation, epigenetics and RNA processing, all the way to genome science. This pathway may include modules such as 'Genetics I and II', 'Eukaryotic Gene Expression' and 'Bacterial Gene Regulation'.
- **Food Security and Sustainability**: in the current climate crisis, preserving the environment and our natural resources to provide food security is paramount. Crucial to this is an understanding of the genetic and cellular control of plant growth and development, as well as our knowledge of crops and their wild relatives. This pathway may include modules such as 'Critical Issues for 21st Century Ecosystems' and 'Plant Sciences: from Cells to the Environment'.
- **Conservation Biology**: this pathway focuses on a wide range of interrelated topics that are key to protecting our natural world for future generations. This includes an understanding of the basic biology and behaviour of animals and plants, to the management techniques that we can apply to produce practical results. This pathway may include modules such as 'Responses to Global Environmental Change' and 'Conservation Practice: From Genes to Ecosystems'.
- **Zoology**: this pathway is for students who are interested in understanding the fundamental aspects of animal biology, from evolution to genetics, their behaviour and conservation. This pathway may include modules such as 'Animal Biology: Principles and Mechanisms', the 'Adaptations to Aquatic Environments' field course, and 'Animal Behaviour: Theory to Application'.

The following labels may be added to our Biochemistry degree programmes:

- **Microbiology and Infection**: as above
- **Genetics**: as above

Students who are particularly interested in biochemistry and medicine may be interested in the Medical Biochemistry degree.

We currently don't offer specialist labels for our Human Sciences degrees, as this is an interdisciplinary degree programme with its own unique skills development.

Call for Early Career Researchers with an interest in teaching

You're invited to join the new inter-departmental network for Teaching and Research Fellows (and any other EC people). The aim of the network is to provide new opportunities for people, who are a bit stuck in their departments, to meet informally and share best practices, collaboration opportunities, and horror/joy stories, in an informal peer-to-peer environment. We're planning a BYO lunch 'meet and greet' in Staff House at some point over the coming weeks, all are welcome. For more info, or to get involved, please email Betsy (Teaching Fellow in Liberal Arts & Natural Sciences): b.porritt@bham.ac.uk

Scott White writes about Professional Recognition for Teaching Practice through Beacon

The Higher Education Academy (HEA)'s Fellowship is an internationally recognised qualification (yes, you get more letters after your name) allowing you to get recognition for your teaching practice. It supports the professional development of Higher Education staff involved in teaching. Whether you are a PGTA, demonstrating in the teaching labs, an early career researcher, gaining some teaching experience, or an old and wizened professor with years of teaching practice under your belt, there are different levels of fellowship, from Associate to Principal that recognise the extent and depth of your teaching experience. To encourage applications for fellowships, the University runs the Beacon Professional Recognition scheme, providing you with induction material, help to decide which level is appropriate for you, writing workshops to help you reflect on the impact of your teaching practice and development, and a mentor to give you one-to-one feedback and support through the application process. The Beacon scheme has been accredited by Advance HE, so fellowship applications are assessed on campus with several submission dates per year. There are four fellowship levels. Associate Fellow is appropriate for PGTAs, Early Career Researchers with some teaching responsibilities, and new lecturers. Fellow is appropriate for Early Career Researchers and Academic-related or support staff with substantive teaching, as well as academic staff. Senior and Principal Fellowship applicants will need to demonstrate the impact of their teaching development beyond their own environments and institution. More details are available in the Beacon Canvas Course. Fellows who want to contribute back into the Beacon programme can apply to become a mentor.

For details see: https://intranet.birmingham.ac.uk/as/hefi/accredited-programmes/beacon/index.aspx

Lindsey Compton & Archana Sharma-Oates write about Distance Learning

Since the global pandemic, we are all familiar with teaching and learning in the online world, but what does it take to develop a fully online Distance Learning Programme? Well, it turns out it is a whole different beast, so we have worked with colleagues in MDS to develop a Canvas course that walks you through The Reality of Developing Fully Online Distance Learning. Self-enrol and take a look at this course! You will see stories from the MSc Bioinformatics cross-college programme that was launched in Autumn 2021, that is one of a growing number of Distance Learning courses offered by UoB. This course is proving to be immensely popular, smashing through its 5-year target for student numbers with its first intake, with students all over the world wanting to delve further into the diverse and wonderful world of bioinformatics!

There is so much we have learnt in designing brand new modules for this course, on topics including introductory programming and scientific communication. At the same time, we are delivering the course entirely asynchronously, which itself brings many challenges. Not least of which is how we can support beginners to learn how to speak the language of computers, or "coding", which is often one of the most challenging learning experiences our students (or we!) ever face. With support from the HEFi Educational Enhancement Fund, we have launched "Feel the code", a project which is helping us to better understand the emotional dimension of the student experience when learning to code and develop more effective ways to support them. In this way, we in Biosciences are making an important and crucial contribution to the next new exciting dimension of our University, *'UoB Online'*. We are looking forward to working with colleagues from across the University to deliver more effective ways to learn new languages in an online world.

New Programmes

Mary Blanchard writes in her role as Programme Lead for Human Sciences: This is the newest undergraduate programme in the School. Students study modules from across the four schools in our College, and, in this aspect, it is similar in scope (if not in content) to the established Neuroscience programme running from Psychology, and to the not-so-nattily named, but equally new, Global Environmental Change and Sustainability programme (GECS), from GEES. These three programmes give students choice and flexibility in their learning, with a strong focus on multi- and inter-disciplinarity. Students taking GECS have modules from GEES, Biosciences, and more broadly across the university. Students taking the Neuroscience programme have modules across Psychology and Bioscience. Human Science students can study across all four Schools in the College.

So if you teach students, be aware of the variety of degree programmes and pathways, each with their own unique background, that they may be signed up to. Remember that students will be able to bring their varied knowledge to your subject in ways that will allow you to see your own material in a new light. However be mindful that this means they don't have the standard background that you might be expecting for students on the Biological Sciences pathway.

For students, talk to those around you, find out about the other programmes, share knowledge and work together, no matter what your degree title. Develop your own inter-disciplinary skills and ensure that everyone comes together as a strong community.

Supporting teaching and learning: a word about HEFi:

HEFi's mission is to support staff to deliver innovative and inclusive research-intensive teaching. In HEFi Digital we support our university digital platforms for teaching and learning, including Canvas, Panopto, Zoom, PebblePad and others. We provide training and continuing professional development for staff in best practice for using digital tools, and also offer support for creating bespoke resources such as the virtual BIFoR tour (working with colleagues in the BIFoR Institute). Here at HEFi, we are always keen to learn more about 'what works' and to encourage collaboration across different disciplines to share good practice and lessons learnt. We run programmes accredited by Advance HE to award HEA Fellowships. These provide teaching development and support for those new to teaching in higher education, or existing staff wishing to refresh and update their education practice. Over the last 10 years, staff have used EEF funds to explore, develop and deliver enhancements to learning and teaching, as well as support innovative, evidence-based practice. For further information, queries, or if you would like to discuss an idea about digital resources for teaching and learning, contact us on lesdigitaleducation@contacts.bham.ac.uk. You can also read more about the team in our LES Canvas support course, which also includes a range of resources and guides to help you with our digital platforms.

Post Graduate Teaching Assistants

Julia Lodge, Biosciences PGTA coordinator writes: from my perspective, it is always good to stand back and observe a busy practical class, and to look for the blue-coated PGTAs (Demonstrators) dispersed around the class, engaging with students, and helping them to carry out procedures and analyse their data. Good, proactive demonstrators make all the difference, and they are often able to support an anxious or confused student in a way that I can't.

Having worked with demonstrators, for more years than I care to admit, it seems to me that most postgrads really enjoy being on the other side of the teaching/learning equation. They get a lot out of the experience in terms of developing skills and gaining confidence in explaining science. If you are a PI, even if you are not involved in practical teaching, please do encourage your research students to take up this opportunity for professional development.

We have a new system for recruiting PGTAs which means that all opportunities are advertised through Canvas, and recruitment is open and transparent. If you are a PhD student and would like to get involved, visit: https://canvas.bham.ac.uk/courses/63547

Who does what in teaching:

an "at-a-glance" guide for Biosciences!

Role	Name
Head of Education	Julia Myatt
Deputy Head of Education	Scott White
Head of Admissions	Mike Tomlinson
Head of Quality Assurance	Juliet Coates
Senior Tutor	Debbie Cunningham
Year Tutor (First Year - not for Human Science students)	Eleanor Cull
Year Tutor (Second Year)	Roisin Madigan
Year Tutor (Third/Fourth Year)	Florian Busch
Head of PGT	Jan Kreft
Programme Lead (Biological Sciences)	Graeme Kettles
Programme Lead (Biochemistry)	Scott White
Programme Lead (Human Biology)	Eleanor Cull
Programme Lead (Human Sciences & Year 1 Tutor for these students)	Mary Blanchard
Programme Lead (Placements)	Klaus Futterer
Programme Lead (International)	Steve Minchin
Programme Lead (MSci year)	Damon Huber
Programme Lead (MSc Microbiology and Infection)	Apoorva Bhatt
Programme Lead (MSc Molecular Biotechnology)	Eugenio Sanchez-Moran
Programme Lead (MSc Toxicology)	Nik Hodges
Programme Lead (MRes Molecular Mechanistic Toxicology)	Nik Hodges
Programme Lead (MRes Molecular and Cellular Biology)	Klaus Futterer
Assessments Lead	Julia Lodge
Final Year Projects Lead	Leanne Taylor-Smith
Practical/CTL Lead	Scott White
Access and Participation Plan (APP) Lead	Juliet Coates
Academic Integrity Officer	Jim Reynolds
Head of Appeals	Klaus Futterer
PGTA Coordinator	Julia Lodge
SEO (Student Experience Officer)	Jessica Adams
Senior Exams Officer (Final Yr)	Tim Williams
Yr 1 & 2 Exams Officer	Juliet Coates

Behind the Scenes – an update

Many are unaware of the enormous admin effort that supports the School's teaching efforts, so, here, Ben Lomas updates us: As we settle into the winter season, the Biosciences support team have undergone some changes. Recent additions to the team include myself and Emily Kuhn, your new Year 3 & 4 administrators, and Sara Hadlow, who is looking after Year 1. We are also working through the process of preparing for more face-to-face engagement and study, as we move on from the pandemic. The difficulty of these changes has been ameliorated by a wonderfully

helpful team of academic staff, and on behalf of our team, I would like to thank all of the them for their support throughout the start of the 2022/23 academic year! We look forward to working with them further in 2023.

For those of you who are new, or unsure, you can find the LES College student hub in the Old Gym (Room Y1), and it is home to the following teams: Taught Student Administration, LES Wellbeing, Student Experience, and Placements. The LES Student Hub reception desk on the first floor of the building is currently open 10am-3pm Monday to Friday, and our experienced staff are always on hand to help with queries. In addition to the LES Student Hub, there are many other student facilities in the Old Gym building.

As a reminder, here is a list of the Biosciences Programme Admin team, led by Arlene Lespeare:

- PGT: bio-pgtadmin@contacts.bham.ac.uk – **Yvonne Lewis**
- Final Year (Year 3 and 4): bio-yrs3-4-ugadmin@contacts.bham.ac.uk – **Emily Kuhn/Ben Lomas**
- Year 2: bio-yr2-ugadmin@contacts.bham.ac.uk – **Kirsty Waters**
- Year 1: bio-yr1-ugadmin@contacts.bham.ac.uk – **Sara Hadlow**
- Affiliate Students: bio-affiliates-admin@contacts.bham.ac.uk **– Kirsty Waters**

Welcome back to Tim Williams

Tim writes: I returned to Biosciences in October 2022 to start a new appointment as an Assistant Professor in Toxicology Education. I'm now based on the 4th floor of the Tower, where you'll find me in room 403. I'm deputy programme leader for the MSc in Toxicology, led by Nik Hodges. In 2023, I will become one of the undergraduate exam officers alongside Juliet Coates, after Scott Hayward takes up his new position as coordinator for the Biosystems & Environmental Change theme. Originally from Wenvoe in the Vale of Glamorgan, I read Biochemistry at the University of Bath. I joined Mike Danson's group studying *Sulfolobus acidocaldarius*, a thermoacidophilic member of the archaea, for my final year project. From Bath, I moved to Paul Norris' group in Biological Sciences at Warwick University, where I continued my research on archaea with a PhD on *Sulfolobus metallicus*. This species grows at 80º C, pH 1.5, and uses oxidation of ferrous iron for energy and fixes carbon dioxide. I characterised some of the key proteins necessary for lithoautotrophy; a novel cytochrome, peroxiredoxin, carboxylase and carboxyl carrier protein.

In 1997, I joined Kevin Chipman's toxicology research group at the University of Birmingham Biochemistry Department. My interest was in molecular ecotoxicology, beginning with reporter gene assays using flounder fish genes and, after a brief interlude working on bacterial mercury resistance with Nigel Brown, I moved on to microarray transcriptomics. I made the first microarrays for flounder and stickleback and published Biosciences' first transcriptomics study. In a succession of NERC and EU -funded projects, I helped pioneer ecotoxicogenomics, elucidating molecular response pathways to stressors, their regulation and relevance to disease. These discoveries were applied to environmentally sampled wildlife to derive multivariate molecular markers indicative of toxicant exposure and health effects, with relevance to chemical risk assessment and environmental monitoring. This is in effect a modern version of the miner's canary for detecting pollution. I have worked with many Birmingham researchers including the Viant, Hodges, Waring, Lynch, Harrad, Lead, Orsini and Colbourne groups, and collaborated widely, particularly with Exeter, Liverpool, Stirling and Glasgow Caledonian Universities, and with Cefas in the UK, Waternet in the Netherlands, NIFES in Norway and the EU SOLUTIONS consortium. Test species ranged from Chlamydomonas algae, Eisenia earthworms, and Daphnia, through a smorgasbord of fish to mammalian cell culture. I developed related interests in metabolomics, bioinformatics and epigenetics, and co-supervised PhD students. In 2018, I was appointed as a temporary teaching-focussed lecturer in Biosciences, contributing both to undergraduate teaching and to postgraduate courses in Toxicology and Molecular Biotechnology, and I passed the PGCHE course.

Over many years, my research career has focused on organisms' responses to alterations in their environment, primarily exposure to toxic chemicals. I believe that leveraging this knowledge and experience to teach new student cohorts is an effective way to help address future toxic risks and threats. I aim to assist our students to succeed at university, whether their goals lie in research, teaching, industry, governance, intellectual curiosity or elsewhere.

(PS: our dog is called Rufus)

Introducing newly-appointed James McDonald

James writes: I joined the School of Biosciences to commence my appointment as Professor of Microbial Ecology in September 2022. Previously, I was based at Bangor University in North Wales, where I spent 12.5 years developing my research programme, after obtaining my first academic position shortly after my PhD. As a microbial ecologist I am interested in studying the structure and function of microbial communities, and their activities and interactions in the environment where they are found. To unravel these complex systems, my research team combine cultivation-based and molecular approaches to characterise and engineer both host-associated and environmental microbiomes to understand their role in host health status, biogeochemical cycling and ecosystem function. I enjoy working on diverse experimental systems and collaborating with colleagues across various disciplines, which has led to some interesting interdisciplinary projects (e.g. wastewater based epidemiology of human pathogens, which led to our involvement in the national SARS-CoV-2 wastewater surveillance programme, during the Covid-19 pandemic). I enjoy working on fundamental research questions, but I am always keen to also explore how this knowledge can be applied to address grand societal challenges. Currently, major research themes in my group include (i) microbiome analysis of oak decline diseases and (ii) harnessing plant biomass-degrading microorganisms to enhance waste biomass conversion to biogas, as a sustainable source of energy. We are interested in leveraging the beneficial properties of microorganisms. Hence, we want to 'engineer' microbiomes for disease suppression in plants, and also for waste conversion to biogas in landfill sites or anaerobic digestor (AD) plants.

I am really excited to have joined the School of Biosciences at UoB. The School and the University have an excellent global reputation, and the breadth of research across the School's four research themes, including the IMI and BIFor, coupled with the University's ambition and commitment to tacking global challenges through ground-breaking and interdisciplinary research, make Birmingham an excellent fit for my research interests. Colleagues across the School have been really welcoming, and I look forward to meeting many more folk in due course, and immersing in the collaborative and vibrant research and teaching environment that the School provides. I'm based in office N107 on the first floor of the Biosciences quad, so please stop by and say hello…

FEATURE: Where are they now?

Scores of staff and hundreds of students have passed through the School and gone on to do great things. Here, Nigel Savery (pictured, left) tells his story:

I have a long history with Birmingham Biochemistry. I was an undergraduate between 1985 and 1988, a PhD student with Jeff Cole between 1989 and 1992, and a postdoc with Steve Busby between 1993 and 1998. Like many, my choice of Birmingham was sealed by encountering the campus in sunny weather on an Open Day and I still get echoes of that first buzz of excitement when I visit. I became hooked on bacterial transcription in lectures with Jeff and Steve, and that thread has run through my career, from transcription activation, through the effects of transcription on genome integrity, to applications in Synthetic Biology.

Birmingham shaped my life in many ways. I met Jo, my wife, because she was a housemate of one of Jeff's other PhD students, and, a few years later, when our first son was born, the convenient juxtaposition of QEH and the campus meant that I was able to pop into the lab during the early stages of labour, and then again in the evening, as a newly-minted father. That's a page of my lab book I've never lived down!!

In 1998, I moved to Bristol, as a temporary lecturer, and set about making myself (I hoped) indispensable by running the Molecular Genetics courses. I've remained there ever since and have been fortunate to work with many wonderful students and postdocs, and have enjoyed some great local and international collaborations. Education has always been a big part of my academic life, and eventually I became Head of Teaching, and then spent a couple of years seconded to the University's central Curriculum Enhancement Programme. At the start of 2022, I became Head of the University of Bristol School of Biochemistry, and so I am now trying to provide others with the culture and support that kept me here happily for so many years!

The EDI section: focus on our Community

Mary Blanchard, School lead for People & Culture, talks about what lies beneath

You have an important work event (e.g. job interview or promotion panel) but there is serious illness in your family and you are tired and worried. You put on a brave face, you get through the event, smiling and professional, then, once alone, you go back to worry, possibly cry, alone. Most of us can relate to this scenario: a need to 'mask' what we really feel, in order to appear 'professional'. We know that this takes extra energy, adds to the situational stress, and makes us more tired. Imagine doing this every day, and the burden of masking every time you interact with those around you. For some colleagues reading this, no imagination will be needed, as this masking is their daily reality. It could be linked to concerns around those that they love and care for, or it could be because they have a hidden, or non-visible, disability. Non-visible disabilities include autism, sensory processing difficulties, mental health conditions, epilepsy, partial sight and hearing loss, chronic pain, diabetes, cognitive impairments, respiratory conditions, and even incontinence. Data indicate that around 20% of adults in the UK have a disability and an estimated 70% of these are non-visible.

So, as it takes so much energy, why do people mask? To fit in; because continually displaying disability to others is equally exhausting and frequently results in questions and long conversations; because they don't want to see another sympathetic pity glance; because seeing another person move back as if to remove themselves from the 'imperfect' is challenging; because of the lack of understanding.

So what can we all do? Never assume. Be kind and supportive. Our community needs to come together, to support those around us, and be supported by them in return. Even if you know of a colleague's disability, those that have spent years, or even their whole lives, masking, hide things well, you will not know they are having a bad day unless they remind you. Creating a community involves us all. To bring us together, and to share our stories and diversity, here, we launch a new section, where individuals can share their unique personal narratives of what brought them to work here at Birmingham. We are starting off with the amazing Professional Services team that keep our School running. In collating these, I have learnt an awful lot about our colleagues, and this all goes to show that you never quite know where you will end up, and what will happen next. If you and your team would like to share their stories in a future edition, then please contact me (Mary – m.l.blanchard@bham.ac.uk), otherwise I shall be on the prowl!

Claire Cooper – Operations Manager: My UoB journey began back in 1998, here, in the very place that I work in now, when I chose to study Biological Sciences, at the University of Birmingham. Gaining my UG degree set me up for my first job with the Forensic Science Service (FSS) working as a DNA Analyst, and I began working there straight after graduating. I really enjoyed this role and was considering a longer-term career in forensic science, however, having lived at home throughout my degree, I had missed out on the independence most students experience whilst at university, and my desire to travel wasn't going away. I decided to take a break from the FSS with the intention of returning 6 months later to resume my role, whilst I embarked on 6 months travelling. However, I didn't return to Birmingham, well, not until 5 ½ years later! It was always my intention to work when I arrived in New Zealand, and I had applied for a working holiday Visa in advance, which allowed up to 6 months' work. However, I very quickly became accustomed to the Kiwi way of life and wanted to stay longer. I began working as a technician in a plant tissue culture laboratory in Auckland. I was soon offered a supervisor role and my employer sponsored me to stay on, and I later applied for permanent residency, and now have New Zealand citizenship. I returned to Birmingham back in April 2007 following the most uncomfortable plane journey of my life (you'll understand why when I tell you I was 7 ½ months pregnant!) to commence my new role of "Mom", and I took on this role full-time for 2 years. After the 2 years, I wanted to get back into work but didn't know where to start and I wasn't feeling overly confident. My sister sent me a job advert for a technician role in Eugenio Sanchez-Moran's lab, I applied and got it, and that's where my career in Biosciences began again back in Feb 2009. I have fulfilled numerous roles in Biosciences over the past 13 years, all of them being scientific/scientific-focussed, until I took the "plunge" to move across to administration in 2017! I was sceptical at first as it was a new venture in a new direction, but I am glad I did it, and I am still very much immersed in the science even though I am not doing it anymore. I am proud to work in Biosciences, and I consider myself lucky to work here in a job that I enjoy, and thanks can't go amiss to all my colleagues across the School and College who make it all so good!

Jessica Pears – Personal Assistant to the Head of School: I studied Psychology and graduated from Aston University in 2009. After this, I went straight into various admin roles, until I decided to take a TEFL course and move to Russia in 2012. I always knew I wanted to go abroad at some point as I love travel. I lived there for two years teaching English, which was a fantastic experience, and I learnt a lot from it. I loved going sightseeing and visiting different places. In 2014, I moved back to the UK with no idea what to do next. I worked in some admin and customer-service roles, until I started my first PA job in June 2017, at the QE hospital. Firstly, I was PA to a director, and then I moved internally to another PA role in the Clinical Research Facility. I took various courses whilst working in the NHS, such as minute taking and medical terminology. As you are probably aware, I am now PA to the Head of School, which I started in March 2021. As this is for the EDI section, I also mention that I am diagnosed with autism, I live with my 3 cats, and I have 11 tattoos.

Leah Thompson - https://www.linkedin.com/in/leahthompson97/: What to say about Leah? I am a graduate from the University of West London, you can follow me on LinkedIn. I was born and raised in Birmingham, quite local to the University! Shortly after graduating with a Music Management degree, I realised that I preferred the events industry, and the idea of someday having my own business. So, with this in mind for the long-term goal, my short-term goal was simple, gain experience, save money, and continue to be amazing. But London life was unnecessarily expensive, full of long journeys to travel locally, not to mention a tough job market if you are recent graduate with 'No Experience'…. of course, I had experience, but just not enough of it compared to my competitors. So, in the end I moved back home and got a job at Cadbury World, where I got to experience meeting different people and creating chocolate souvenirs shaped like shoes or footballs for sale in the shop. Covid then hit, Cadbury wasn't for me really, I wanted to work in a university again, and a UoB apprenticeship was my way in. Now you are stuck with me for a while! I was raised to be creative and self-sufficient, and that has become my mantra. I love event planning and organising things, so here are some tips for current students and recent or soon-to-be graduates: (1) Enjoy the university experience, it's a taste of adult life but without all the responsibilities. (2) Work as you learn, future employers want to know what skills and experiences you've had. (3) Knowledge and a degree isn't enough, transferable skills are needed too. (4) Your future is not determined by your degree grade. (5) Learn from others' mistakes, it saves you from the negative experiences and teaches you what not to do!!

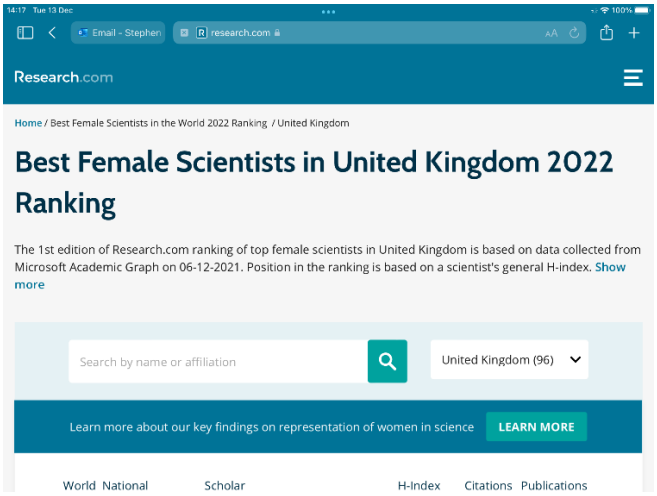
The School of Biosciences EDI Committee: Mary Blanchard, Eleanor Cull, Juliet Coates, Lindsey Compton, Scott Hayward, Sam Benedict, Alison Iboro Offong, Rachel Howes, and Archana Sharma-Oates.

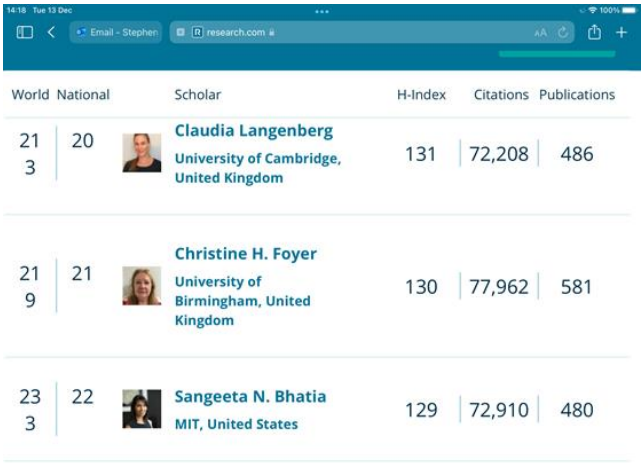
The Committee works on YOUR behalf, so please make sure they know your views!

Research News

Huge congratulations to Dr Josh Quick who was awarded the **2022 WH Pierce Prize** by Applied Microbiology International (formerly SfAM, the Society for Applied Microbiology). The award is made annually to an early career researcher who has made outstanding contributions to applied microbiology. Josh received the award for his work on applying rapid and portable sequencing methods to tracking harmful viruses and bacteria.

Congratulations to Professor Christine Foyer on being very highly ranked in the recently-released Research.com rankings





Making a splash with your research……advice from Marketing & Communications

From writing blog posts to being interviewed by the BBC, the University's comms teams are here to help you raise the profile of your research, and share your expertise with different audiences. We want to hear about your research papers, your awards, your grants – and anything else you think is worth shouting about.

While we love to support researchers to get high profile, national media coverage, we can work with you to reach the audiences that best fit with your work. That could be via a press release, or an expert comment on a current news topic. It could also be a blog post for our *Perspective* or *Birmingham Brief* series; or it could be a video or news item for the College web pages.

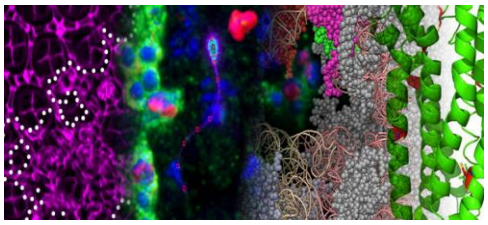
The first step is to come and talk to us about what you're working on, and we'll advise on how we can work together.

Caroline Durbin (Research Communications Manager, College of Life and Environmental Sciences) & Beck Lockwood (Communications Manager, Science and Technology)

Special Event! LES PGR Lunch

- Friday, 3 February, 12-2pm, Westmere House
- Please join for lunch (provided) to meet other PGRs from across LES, and a chance to give feedback and explain your priorities to the LES PGR training and research experience team. We look forward to seeing you there!

More Change…….new Biosciences Research Theme Coordinators



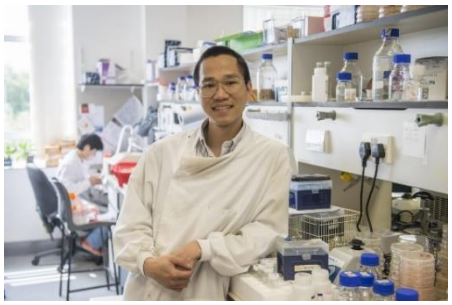
James McDonald: Microbiology

Scott Hayward: Biosystems and Environmental Change

Teresa Carlomagno: Structural and Molecular Cell Biology

Dan Gibbs: Plant Science and Food Security

Announcing a new seminar series sponsored by the Biochemical Society:



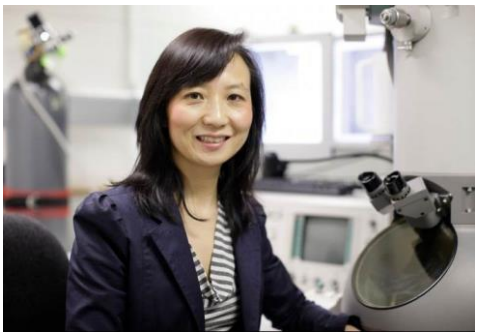
Next semester, the Biochemical Society will fund a short series of seminars, focussing on biochemical mechanisms in bacteria, as part of the 'usual' Tuesday series, held at 1 p.m. in Biosciences E102.

On Tuesday 7th February, Dr Tung Le (above left), currently a Royal Society University Research Fellow and Group Leader at the John Innes Centre (JIC), Norwich, will talk about his work on the organisation of bacterial chromosomes, and how they are segregated during cell division. Tung was an undergraduate in the School of Biosciences before moving on to do a PhD, guided by Mark Buttner, at the JIC.

On Tuesday 7th March, we welcome Professor Tony Maxwell (above right), also from the JIC. Tony will be talking about his research on DNA gyrases, which are the enzymes that introduce supercoiling into DNA, thereby allowing it to access a variety of different conformations, many of which are essential for compaction. These gyrases are the targets for antimicrobial reagents, so there will be quite a bit about these compounds, and resistance to them too.

On Tuesday 21st March, Professor Nigel Savery (see page 8) will be speaking about transcription-coupled DNA repair in bacteria. This is a fascinating and important, but under-appreciated topic. In a nutshell, when the transcribing DNA-dependent RNA polymerase hits damaged DNA, it stalls, and this acts as a signal for various proteins to fix the problem.

Finally, on Tuesday 25th April, the speaker will be Xiaodong Zhang (right) who is currently Professor of Macromolecular Structure and Function in the Department of Infectious Disease at Imperial College, London. She will be talking about bacterial sigma factors, that are responsible for specifying transcript start-points, and orchestrating the initiation of transcription. The focus will be on an unusual family of sigmas that work in a way that is very different from the vast majority of sigma factors. Members of this family all rely on the ATP-driven activities of special transcription factors known as enhancer-binding proteins. In her seminar, Xiaodong will be explaining how it all works, and why it's important.



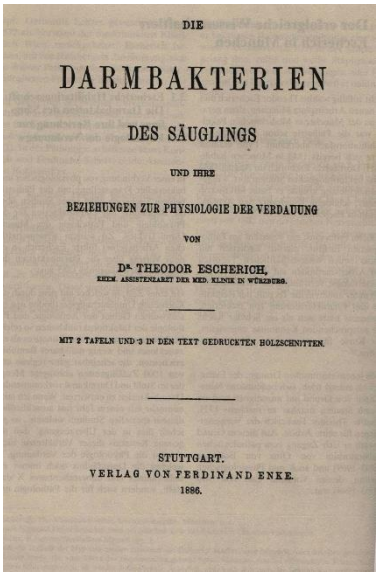
The Mini-Safe Mole

***Andy Lovering writes*:** Dear readership – Happy 2023! I am writing this as the department undergoes the first internal h&s inspections in the post-COVID era. Thank you in advance all for your efforts and engagement during this period. I think its fair to say that these first rounds of inspection (to be carried out approximately every six months hereafter) will be those that unveil the most issues, and that we will have a more straightforward time with things in subsequent inspections. Of course, these are intended to help establish and maintain the best working environment, and we aim to be receptive to any comments you have on how to improve these – send comments our way. Secondarily, the aim is not to point the finger and blame, it's to assist labs and those running them. One last request would be to respond collectively where areas and facilities are shared, even if these are used to a lesser degree by your group.

Thanks again from Andy & the Team (biosci.hs@contacts.bham.ac.uk)

STAY SAFE!

The story behind the paper:


DIE

DARMBAKTERIEN

DES SÄUGLINGS

UND IHRE

BEZIEHUNGEN ZUR PHYSIOLOGIE DER VERDAUUNG

VON

Dr. THEODOR ESCHERICH,

EHEM. ASSISTENZARZT DER MED. KLINIK IN WÜRZBURG.

MIT 2 TAFELN UND 3 IN DEN TEXT GEDRUCKTEN HOLZSCHNITTEN.

STUTTGART.
VERLAG VON FERDINAND ENKE.
1886.

DF Browning, JL Hobman, SJW Busby (2022) Laboratory strains of *Escherichia coli* K-12: things are seldom what they seem. *Microbial Genomics* DOI 10.1099/mgen.0.000922

Way back in the 1880s, a German medic, Theodore Escherich became interested in bacteria in the faeces of his patients. He rightly deduced that these had been resident in patients' colons, and he managed to grow them in his laboratory. Little did he know that, many decades later, in his honour, these bacteria, would be renamed *Escherichia coli*, and they would become the model organism for thousands of researchers who wanted to understand the workings of living cells at the molecular level. Most have used a strain dubbed K-12, and even today, labs worldwide publish papers about it. In fact, this precise strain of *Escherichia coli* was originally isolated in 1922 from the faeces of a recuperating diphtheria patient at Stanford University, California. The strain was preserved and, eventually, it and many derivatives were distributed to research labs around the world. Now, exactly a century later, a team of researchers from the Universities of Birmingham, Aston and Nottingham, led by Dr Doug Browning, have gone back to the early preserved isolates and looked at the base sequence of their DNA. Amazingly, they find a large number of differences at the DNA sequence level, and the differences are bigger when they look at currently used stocks that are derived from the originals. The work, published in *Microbial Genomics*, underscores the dangers of using one strain as a sole model, confirms that bacterial sequences evolve over short time scales, and provides a fascinating insight into the first baby steps of molecular microbiology. Lead author Doug Browning commented "The past 10 years have seen a massive amount of bacterial genome sequencing, and the picture that is emerging is that bacterial genomes change very fast. This was unimaginable 100 years ago and, of course, this is why folk felt justified to adopt their strain as the model for everything". Co-author, Jon Hobman, added "Actually the diversity that all this generates adds a new dimension to our understanding". As suggested in the title "things are seldom as they seem"…. at least if you only study one strain!

Postdoctoral and Early Researcher Career Development and Training

The PERCAT programme within the Colleges of Engineering and Physical Sciences and Life and Environmental Sciences provides a gateway to resources and support available for career development, and to training for postdoctoral and early career researchers. PERCAT is run by postdocs for postdocs, and provides a programme of events and activities for staff in the two Colleges.

See: https://www.birmingham.ac.uk/university/colleges/les/percat/index.aspx

Round and about

Monday 5th December was a BIG DAY for staff and students alike, as scores of our students received their degrees. This time, Biosciences was allocated the 10:30 a.m. slot (shared with GEES). PVC International, Robin Mason, presided over the ceremony, and, afterwards, staff and students returned to the Undercroft for celebratory drinks.

The week before, the School had held the very first party of the Christmas cycle (held on the 1st December). This had doubled both as a coffee-morning and a tree-decorating ceremony, so the Undercroft was looking magnificent, the highlight, of course, being the tree.

Many of the graduands on the 5th were from the School's MSc programmes, and so Jan Kreft, School PGT coordinator, used the occasion to present some prizes: the Olly Beswetherick prize in Molecular Biotechnology to Kamila Orzechowska, the Institute of Microbiology and Infection Prize to Kaspar Garnham, and the MSc Toxicology ApconiX and Chemical & Forensic Toxicology Prizes to Emma Quartermain.

The Back Page

The inaugural Biosciences ramble was held in the Clent Hills on Sunday 13th November. The weather was favorable and a brilliant day was enjoyed by all who came along.

The Caption Competition

The very first competition of 2023 features our own Estrella and Mike indulging at the BioSoc Karaoke event (left). A pointless prize awaits the sender of the best suggestion for what our crooners are really singing.

The Biosciences Awayday

School Staff gathered at the Exchange in Centenary Square on Monday 20th December for a day of reflection, constructive discussion, networking, and, yes, some party games, organised by MCs Mike Tomlinson and Dan Gibbs, under the watchful eye of the Head of School. The day was rounded off by drinks and a sumptuous buffet supper at the nearby Alberts Schloss Bar. And there is more to come with an Education Awayday on Wednesday 11th January!

A damp squib: ***last time, readers were challenged to speculate on what was being said, as contractors attended to the clockface of Old Joe (left). Alas, nothing very original came forth. Obviously our readers were focussing on higher things! Must try harder!!! (and so must our contractors: as we go to press, the clock is still telling the wrong time)***

Below, a glimpse of the future: more next time!

Next issues of the Mole

Easter 2022: focus on Plant Science & Food Security

Summer 2022: focus on Learned Societies

Got a story for us? Want us to "hold the front page"?

Contact Steve Busby: s.j.w.busby@bham.ac.uk