REPORTER

SHARING STORIES OF IMPERIAL COLLEGE LONDON'S COMMUNITY

In this issue

Imperial College London

IMPERIAL IN BRIEF

ANIMAL RESEARCH

Leading openness in animal research

Imperial has been named as one of the 13 organisations to receive a Leader in Openness Award from Understanding Animal Research.

Robert Floyd, Director of Central Biomedical Services, said: "The award is a further demonstration of Imperial's commitment to follow best practice and to be open about the use of animals in research both within the College and with the general public. Congratulations to all the people that have made it possible."

▶ **FULL STORY: bit.ly/reporter311-leader**

COLLEGE

NEW CHAIR OF COUNCIL

Imperial has appointed John Allan CBE, one of Britain's foremost business leaders, as its new Chair of Council.

Allan is President of the Confederation of British Industry (CBI), representing 190,000 businesses. He also chairs two FTSE 100 companies: Tesco and Barratt Developments. He will become Chair of Council, Imperial's governing and executive body, from January 2020.

As the 13th Chair of Council, Allan succeeds Sir Philip Dilley, former Executive Chairman of multinational design and engineering firm Arup, who is to step down after more than four years as Chair and eight years as a member of Council.

▶ **FULL STORY: bit.ly/reporter311-council**

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THE JAMES DYSON FOUNDATION'S GENEROUS DONATION… LET US CREATE A WORLD LEADING SCHOOL FOR A NEW KIND OF ENGINEER WHO WILL LEAD THE NEXT TECHNOLOGICAL REVOLUTION.

Professor Alice Gast at the opening of the Dyson School of Design Engineering on 13 May.

▶ **FULL STORY: bit.ly/reporter311-dyson**

A team of videographers was out and about during the Great Exhibition Road Festival weekend, capturing all of the weekend's sights and sounds.
▶ WATCH THE VIDEO: bit.ly/reporter311 -festival

COLLEGE

SECURITY HEROES

Imperial's Security team successfully resuscitated a man who suffered a cardiac arrest on campus. The London Ambulance Service said they saved the man's life. Dave Gordon from the Security team reflects on an extraordinary day.

Dave Gordon (left) and Nic Demir.

"That Thursday is a bit of a blur. I looked out of my office window and saw a person lying on the ground. Two of my colleagues, Sonia Da Silva and Nic Demir, had already assessed him – he was not breathing and not responsive. I took over chest compressions, while my colleague Nic set up the defibrillator. We shocked him and he started breathing again – but I had to keep doing compressions as he was only breathing intermittently.

"We continued until the ambulance arrived – the patient is still in hospital, but we've heard he should make a full recovery, which is very good to hear.

"I was doing compressions for 10 minutes, but it didn't seem that long at all. You don't really think about what you're doing until afterwards, the training we have kicks in and you're focused on doing the best you can.

"Everyone in the Security team receives first aid training every year. The training covers how to use a defibrillator – we have them stored across all our campuses now. You hope you never have to use it, but it could happen in your personal life as well as at work, so it's good to have the skills."

There are trained first aiders across all our campuses. In an emergency on campus, call 4444 to contact Security.

▶ LEARN MORE: bit.ly/reporter311-firstaid

COLLEGE

NEW SUPPORT FOR STUDENTS

Imperial has launched a new initiative to support students who have experienced sexual violence. Working with Lime Culture, the UK's leading sexual violence training and development organisation, the College has trained a team of five Sexual Violence Liaison Officers (SVLOs) who can handle disclosures of sexual violence from students.

The SVLOs can guide students through their options confidentially and without judgement, and will help them to access the right resources, support and information.

The initiative forms part of Imperial's drive to improve support for students who have experienced sexual violence whether on or off campus, or recently or in the past.

Commenting on the launch, Vice-Provost (Education) Professor Simone Buitendijk said: "I don't want any student to feel isolated during their time at Imperial. When they need us most, I want them to know that we are here for them."

▶ FULL STORY: bit.ly/reporter311-svlo

Summer at South Kensington

Exams. The Summer Ball. Undergraduates move out. The Great Exhibition Road Festival. And then? We go behind the scenes on campus to find out what happens over the 'quiet' summer period.

Elizabeth Nixon
COMMUNICATIONS AND PUBLIC AFFAIRS

On some of our campuses, life continues much as normal. But at Imperial's biggest campus at South Kensington, the summer months have a very different feel. The queues for lunch are shorter, unless you end up behind some of the schoolchildren who have mysteriously appeared on campus. Groups of people who are definitely older than undergraduates are checking into our student halls. Rooms are taken over by the Estates team rather than for lectures.

Out with the old: lecture theatre 113 will be refurbished this summer

CAMPUS IMPROVEMENTS

The Estates team look after the College's campuses all year round, but the summer is a particularly important time for improving our spaces.
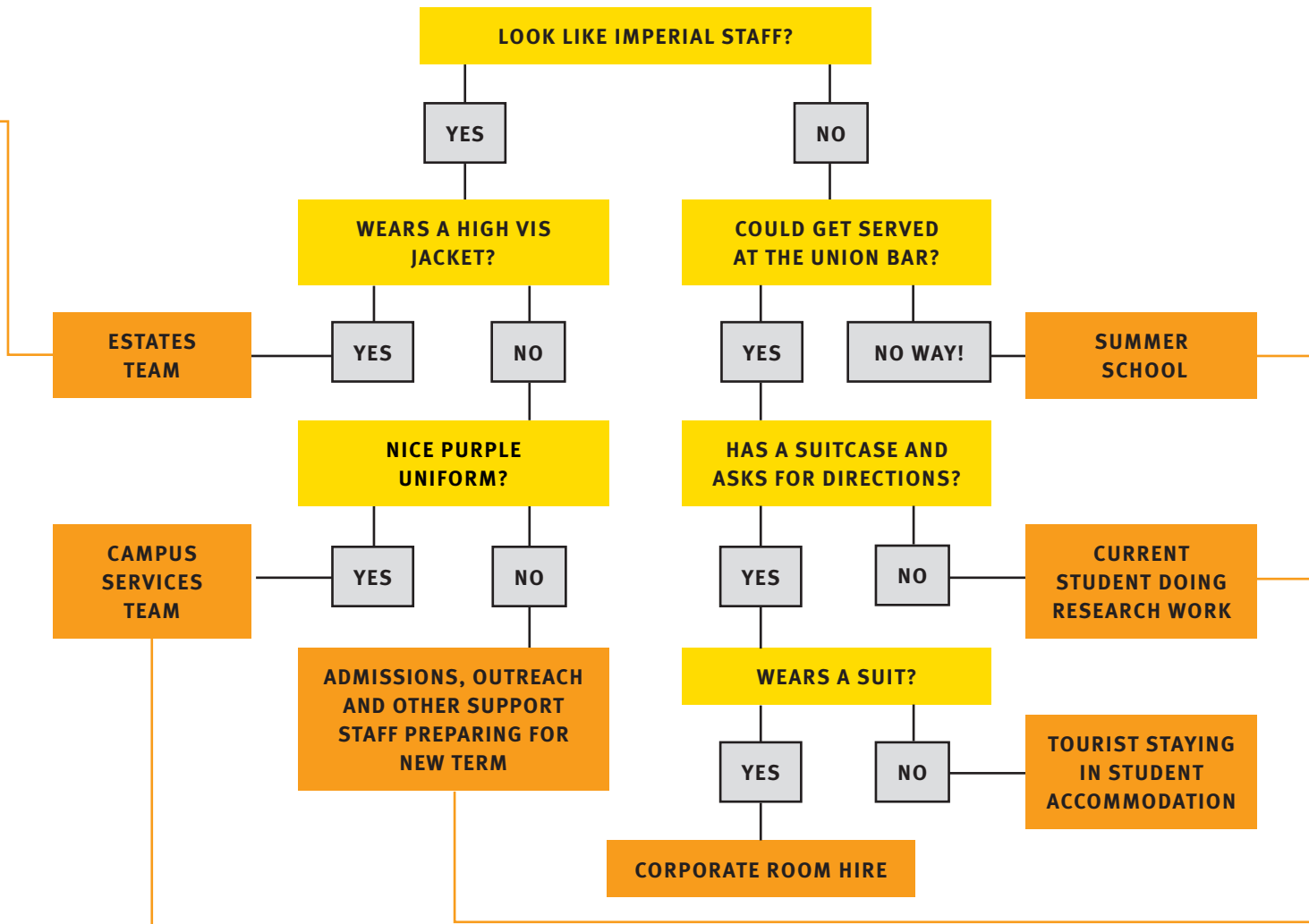
With an estate the size of Imperial's, there is always a full workload for the team during the summer, ranging from minor repairs to full-blown refurbishments. This summer is no exception. While Estates focus work on periods when undergraduate students are away from campus, great care is also taken to not disrupt the many other College activities continuing through the summer.

Even if you haven't been into lecture theatre 113 in the Blackett Building, it will be a familiar space. Nine rows of fold down chairs with desks in front of each one, going down a steep raked floor towards a projection screen at the front. Spaces like this work well for lectures, but are difficult to use for other types of teaching and study.

To ensure completion ahead of the autumn term, lecture theatre 113 and a similar space in the Royal School of Mines were stripped out shortly after Easter so renovations could start. From October, the transformed rooms will be used for significantly more interactive learning than the traditional lecture layout allowed for. They will also be a great space for group work, as well as quiet study outside teaching hours.

Looking more widely, the Estates team are also building a link bridge between the Dyson Building and the Observatory Building – where lots of teaching for the Dyson School of Design Engineering takes place. The bridge will mean staff and students will be able to move between spaces much more easily, and will provide a more seamless experience for everyone who uses those buildings.

WHO'S ON CAMPUS THIS SUMMER?

LOOK LIKE IMPERIAL STAFF?

YES → **WEARS A HIGH VIS JACKET?**

YES → **ESTATES TEAM**

NO → **NICE PURPLE UNIFORM?**

YES → **CAMPUS SERVICES TEAM**

NO → **ADMISSIONS, OUTREACH AND OTHER SUPPORT STAFF PREPARING FOR NEW TERM**

NO → **COULD GET SERVED AT THE UNION BAR?**

YES → **HAS A SUITCASE AND ASKS FOR DIRECTIONS?**

NO WAY! → **SUMMER SCHOOL**

YES → **WEARS A SUIT?**

NO → **CURRENT STUDENT DOING RESEARCH WORK**

YES → **CORPORATE ROOM HIRE**

NO → **TOURIST STAYING IN STUDENT ACCOMMODATION**

CONFERENCES AND SUMMER LETS

What happens to student rooms over the summer? And why is Imperial hosting so many conferences? The Commercial Operations team is here to bring in extra income for the College. In this financial year, the team will bring in revenue over £11 million, with all profit reinvested back into College.

One way of doing that is by renting out spaces on campus outside term time, when they're not needed by staff and students.

The Conferencing team get over 300 enquiries a month from people wanting to book events on campus. "We look at what kind of organisation they are and

how that sits with Imperial's mission," says Kim Vieira-Martins, who heads up the team. "We also look at what the organisation are planning to do during the event and how this could affect staff and students using nearby spaces – like a choir wanting to book space to use for rehearsals."

Lucy Spasova-Joneja leads the Commercial Summer Lettings team, who run a bed and breakfast service over the summer in student halls

that would otherwise be empty. This summer, the team will be letting out 2,000 bedrooms across four different sites. The rooms are booked by a mixture of residential conferences, tourist groups, and individual visitors.

The team works closely with Campus Services and Estates, who run the operations on the ground. "The preparation for the summer takes months and it usually starts as soon as the last guests leave in September the year before," Lucy says. "The time between the students leaving at the end of the academic year and the first guests arriving is particularly busy as we have to convert 2,000 student rooms to guest bedrooms in less than 48 hours."

SUMMER SCHOOLS

Do you ever feel like Imperial students are getting younger? If you've had this thought over the summer, you could be right. Each year, Imperial opens its doors to around 800 young people aged from 13 to 18 for a series of summer schools.

The Student Recruitment and Outreach team barely have time to draw breath after coordinating two open days in June – which attracted around 8,000 visitors – before the first summer school starts in early July. There are then teenagers on campus until the very end of August.

The summer schools are focused on widening participation – engaging students who might not otherwise consider applying to a university like Imperial, or to university at all. Applicants are assessed using a set of criteria based on social deprivation – for example, if a child has been in care, or would be the first generation in their family to apply to university.
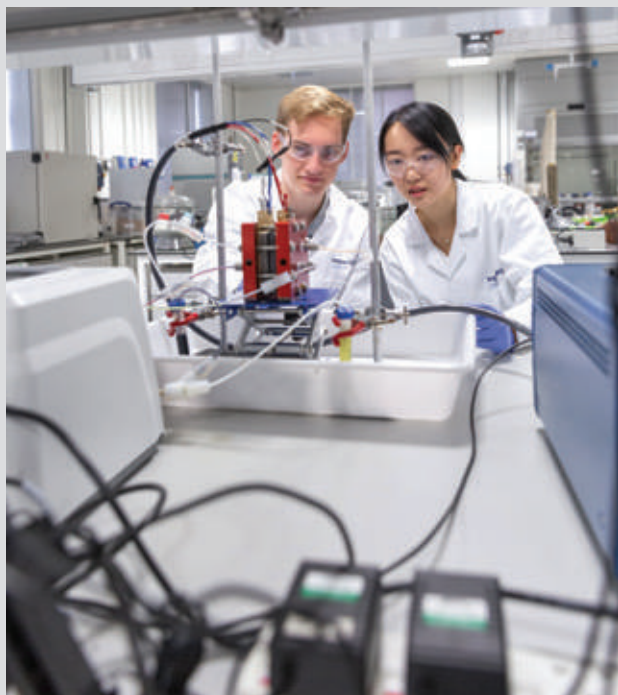
Among the 14 programmes that will run in 2019 are the Sutton Trust summer schools for Year 12

students. The students stay in Imperial undergraduate accommodation and get a taste of the social side as well as the academic side of student life.

The Outreach team coordinate the overall programme, but it's academic departments who run the subject-specific sessions. This will be the fourth year the Department of Electrical and Electronic Engineering has been involved. Kay Hancox, the Department's Education Manager, organises a mix of talks and practical lab activities. "We try to give them a flavour of what it's like to be an Imperial student," Kay says. "The best thing we've found is how engaged the students can be. We've had a number who did the summer school and are now undergrads here."

One such student is Holly Monkhouse, who has just finished her second year studying biochemistry here at Imperial. She first visited four years ago when she came on the Year 11 Project STEM Summer School. Last year she worked as a pastoral mentor on the Sutton Trust summer schools, looking after a group of eight students outside the academic sessions. "I still remember my mentor from when I was on the summer school," Holly says. "I'd never really considered coming to a London university – it was at the summer school that I realised that it was accessible to me. It's great to see students on the programmes now have a similar reaction when they're staying at Imperial."

UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAMME

Not all our undergraduate students leave campus for the summer however. Each year, over 300 students do a 6–10 week research project in one of Imperial's departments. The Undergraduate Research Opportunities Programme offers students the chance to see first-hand how our research groups operate, with a bursary scheme available to cover living costs.

Talal Haddad from the Department of Life Sciences completed a research project in 2018. He said: "I had been keen to build on my confidence in performing lab projects and gain experience in more independent, results-oriented work.

"During lab meetings and journal clubs, it was an opportunity to be exposed to different fields of study and practise scientific communication and presentations. It was a new experience to feel responsible for a research project but provided useful insight into what it's like to work in academia.

"I feel more inspired and confident to pursue a career in research and have started planning towards postgraduate studies, with the hope of becoming a researcher in academia or industry."

A-LEVEL RESULTS DAY

Over on the third floor of the Sherfield Building, the second week of August is one of the busiest times of year for the Admissions team in Registry. On Saturday 10 August, all 21 members of the team will be in the office to start processing A-level results for school students who have an undergraduate offer from Imperial. "It's a relatively fraught time of year for the team, but it's quite an exciting time of year too," Mel Williams, Director of Admissions, says. "It's the end of the undergraduate admissions cycle and what we've been working towards for the entire year."

If an applicant has met all the conditions of their offer from Imperial, then the Admissions team goes ahead and confirms their place with UCAS.

If an applicant has missed their offer – for example, they were offered A*AA and they achieved AAA – then the academic department will reconsider the applicant. Each department has an Undergraduate Admissions Tutor – an academic who takes on the role for a couple of years – as well as an administrator who supports the admissions process. They will look over all the information they have about an applicant and then decide whether or not to confirm their applicant's place.
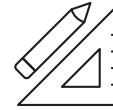
A-level results are released to anxious applicants on the following Thursday – and the goal is to make all decisions by then. "It helps that my team works really well with the departmental staff, who are all really knowledgeable and experienced," Mel says. "We're all working towards the same goal – to confirm as many places as possible so that applicants know whether or not they're confirmed with Imperial on results day."

The team's phones will start ringing from 7.00 onwards on Thursday morning. "Sometimes successful applicants will call to confirm," says Mel, "but mostly we get calls from applicants who have missed their offer. We're always sensitive to how they might be feeling and advise them to talk to a teacher or their parents."

Six weeks later, 2,500 new undergraduate students will arrive on campus for Welcome Week, A-level students will start making applications to Imperial – and the whole cycle starts all over again. ●
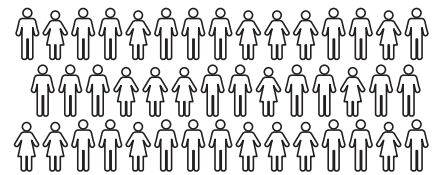
WHAT WE DID THIS SUMMER

800+
Summer school attendees

8,000
Open Day visitors

4,500
Undergraduate applicants go through the A-level confirmation process

86,000
Rooms cleaned

52,000
B&B breakfasts served

25,000
Bars of soap provided

Giving futures

With alumni engagement and philanthropic income at an all-time high, it's an exciting time for Imperial's new Vice-President (Advancement), Michael Murphy, to join the College. As Advancement enters a new era under Michael's leadership, we take a look at this growing area.

AT THE BEGINNING OF THE ACADEMIC year, 75 students are welcomed into a lecture theatre in the Skempton Building. They come from different faculties and departments but they have one thing in common: they are all President's Scholars. They have been awarded scholarships as they are bright, ambitious and hard-working. But the other reason they have received these awards is because generous people from around the world have donated to the President's Scholarship Fund. This is what the students learn at Advancement's Scholar Briefing. You can see the impact the news has.

"It's an honour to be a President's Scholar," said medical student Orla Williams. "But it's even more of an honour to know there are people out there supporting and investing in your education that you've never even met before."

There are many people out there, in fact. In 2017–18, 1,183 alumni and friends gave to the President's Scholarship Fund, raising over £387,000. Many others gave to research, facilities and outreach programmes at the College. The total contributed in 2017–18 was £59.1 million, nearly three times what was raised just

Edwina Rossi is an undergraduate President's Scholar studying Molecular Bioengineering.

ADVANCEMENT OVERVIEW

Advancement comprises five teams:
- Development and Campaigns
- Principal Gifts
- Global Development
- Alumni Relations
- Advancement Operations

three years ago. This year, that figure has already been surpassed.

Today, Imperial has more than 185,000 alumni – an international community of scientists, engineers, medical professionals and business leaders. A key objective of Advancement is to work with academic staff and students to connect our alumni, partners and friends to the College and each other, and provide opportunities to contribute to Imperial's ongoing success.

Connecting a community of this size and raising funds at this level requires partnerships and collaboration. The Advancement team includes alumni relations specialists, fundraisers, administrators, events managers, programme and project managers, accountants, legal professionals, communications specialists, data experts and researchers. They work closely with teams across the College – academic staff, Registry, Finance, Communications and Public Affairs, and Campus Services, to name only a few. Together, they help members of Imperial's community support the College in a way that feels meaningful to them.

Some of these supporters give money, some give time – speaking at student recruitment events, or providing mentoring and career support. Of those who give financially, many support President's Scholarships, or create bespoke opportunities like the Riley Family's MBA scholarship. Others choose to support research, as Diana Scarrott did when she pledged a legacy gift to 'blue-skies' computing research. Some donors transform our campuses, like Agilent Technologies, which donated state-of-the-

> ## IT'S AN HONOUR TO KNOW THERE ARE PEOPLE SUPPORTING AND INVESTING IN YOUR EDUCATION THAT YOU'VE NEVER EVEN MET.

art instrumentation for the Molecular Sciences Research Hub. Others touch individual lives, like those who give collectively to the Student Hardship Fund.

Their reasons for giving are myriad. Many say they owe their careers to Imperial, and now wish to 'give back'. Some want to help tackle societal challenges, like the ones on the research agenda of the Mohn Centre for Children's Health and Wellbeing, established thanks to a £25 million gift from Marit Mohn (MSc Chemical Engineering and Chemical Technology 1973). Some are 'paying forward' support they received as students, while others are honouring family members, or supporting Imperial doctors who helped them in difficult times.

Key to Advancement's work is understanding these individuals, while building a strong sense of community. Offering a personal touch through a letter, an exclusive invitation, or a phone call from a student, while uniting people through Alumni Weekend, international events, donor recognition circles, or digital communications and networking platforms. Each stage in the donor journey provides an opportunity to show our gratitude, from the timely processing of a gift receipt, to the opening ceremony of a new building.

The start of the new academic year is also a time to celebrate the achievements of Imperial's newest graduates. In October, Advancement hosts Commemoration Day, where over 2,500 undergraduates receive their degree and are welcomed into the alumni community. Many choose this time to start their philanthropic journey, too. Ahnaf Bin Anesee (Biotechnology 2017) is one of them. "I am doing this," he said as he made his first £20 donation, "because I want to support future students on the way to their own graduation day." ●

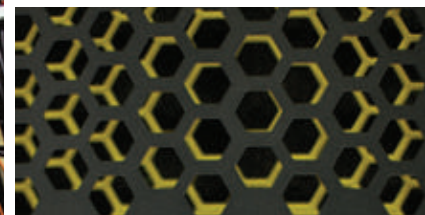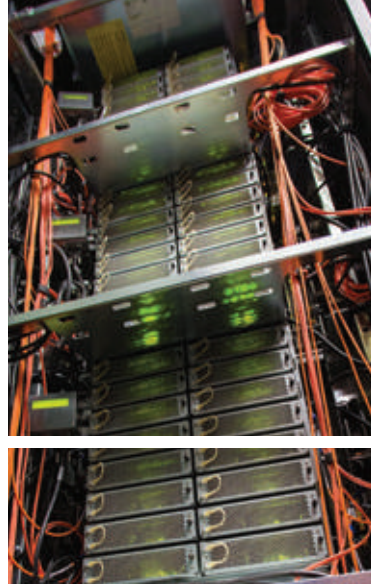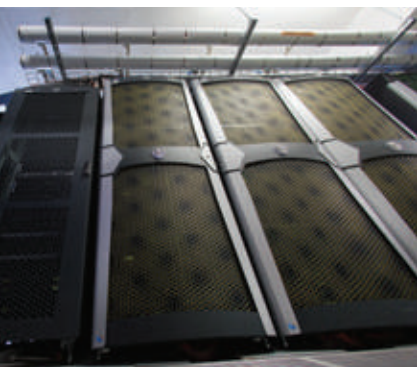## INTRODUCING MICHAEL MURPHY: VICE-PRESIDENT (ADVANCEMENT)

Michael Murphy joined Imperial in June 2019 to lead Advancement. A highly successful fundraiser, Michael has worked with leading scientific and educational institutions throughout his career, including the US-based National Academies of Sciences, Engineering and Medicine, the Foundation and Friends of Kew Gardens, and The Royal Society.

"For me, Advancement is all about building relationships with supporters. That is vital, whether you're a leading international university like Imperial or a great symphony orchestra. That said, everyone can play a role in engaging alumni, friends and institutions. Often the most fruitful philanthropic partnerships grow out of the power of association that people have with an institution.

I view Advancement a little like a matchmaking function. We're champions of the College and want to find the right fit between College priorities and donors, and realise what we can achieve together.

I'm excited to be here at Imperial. It's an institution with a world class reputation and I was particularly drawn to the interdisciplinary nature of research and teaching here. Many institutions talk about this, but I feel it is really a part of Imperial's DNA. I'm convinced that the solutions to societal challenges lie in uniting expertise across the domains of science, engineering, medicine and business, and it's a great privilege to play a part in that."

Computing power

From mapping species' ranges in Brazil's Atlantic Forests to understanding the interaction of genes and the environment, high performance computing is giving researchers extra power to solve big problems.

HIGH PERFORMANCE COMPUTING (HPC) is fast becoming a vital tool for researchers at the College. It allows individual computers to work together to analyse data that is too large for a single desktop to handle. More traditionally, HPC has been used for modelling and simulations in areas such as climate and aerodynamics. But increasingly, more researchers are adopting HPC techniques to enable them to work on large datasets in much shorter timeframes.

The Research Computing Service at Imperial provides researchers with access to powerful computing resources, consultancy and training. Its team of software engineers, specialist trainers and systems analysts support over 3,000 users across the College, as well as more than 2,500 computer nodes, which can deliver the equivalent performance of more than 15,000 desktop computers.

Registered users can access HPC resources through the Service's computer cluster. This machine contains resources tailored to different research needs and computing tasks and allows the Service to support high throughput computing – a form of HPC that involves conducting the same calculations many times on a large dataset. It can also handle highly-parallel simulations which require the simultaneous use of hundreds of processors. The Service has recently introduced new Graphic Processing Unit (GPU) resources to support machine learning applications.

BIG DATA, BIGGER STORAGE

With the growth of HPC at Imperial, the need to store large datasets securely and in an accessible way has also increased. Storage is needed for data through its whole life cycle – from when it's being used in live research projects to when it is archived. In 2017, the Imperial research computing facilities moved from the South Kensington Campus to a professional data centre in Slough. The Service's Manager, Matthew Harvey, oversaw the move. "We outgrew the facility at South Kensington," he says.

"Now we have about 2,500 separate machines that have dedicated networking between them so they can communicate amongst one another."

The Service is also investigating potentially moving to a hybrid approach to delivering its services, which would use a mix of on-premises hardware with cloud capabilities. "This could give us more flexibility," explains its Director, Professor Spencer Sherwin, "and allow us to meet burst demand at particularly busy times of the year, which means the College could be more responsive."

ADAPTING TO CHANGING USERS

As more disciplines have started to adopt big data techniques, the Research Computing Service has adapted to new demands and emerging technologies. Advances in areas such as machine learning, electronic records and genomics have led to an increase in registered users from the Faculty of Medicine and the Business School.

WHAT THE RESEARCHERS SAY

DR DAVID ORME

Research Fellow in Department of Life Sciences
Works on species diversity and uses computer models to explore spatial data – like species' range maps.

"Ecological research using 'big data' is becoming more common. An individual researcher might be able to afford one powerful workstation, but computing resources are then the bottleneck in research. The Research Computing Service allows us to get answers much more quickly and provides the power to solve difficult problems but, probably more importantly, also makes it possible to do more data exploration and more careful research."

DR ANTONIO BERLANGA-TAYLOR

Research Fellow in Computational Biology, School of Public Health
Studies the interaction of our genes and the environment in disease development.

"Genomics simply wouldn't exist without research computing resources such as those provided by Imperial. I study large cohorts with multiple measurements that amount to hundreds of millions of observations. Answering research questions based on these data requires not only high performance computing but also data storage alongside the expertise and person-power that the Service provides."

DR KIM JELFS

Department of Chemistry
Uses computational approaches to enable the discovery of functional molecular materials.

"Every member of my group uses the Research Computing Service on a daily basis to run computationally intensive calculations. Not only do we need to run parallel calculations, but my group's research is also focused upon high throughput screening, where we need to run tens of thousands of calculations to screen candidate materials before we analyse them for functionality."

More about the Research Computing Service:
▶ **www.imperial.ac.uk/ict/rcs**

"

OUR TRAINING IS FOCUSED ON ENSURING POSTGRADUATES AND EARLY STAGE RESEARCHERS ARE EQUIPPED WITH THE SKILLS TO USE HPC EFFECTIVELY IN THEIR RESEARCH.

Sherwin is aware that a different cross section of researchers is now using the Service. "We are trying to realign our activities to adapt to this change," he says. "Not only in terms of the actual hardware and software, but also in the support and training we offer. Different disciplines value different aspects of our service and we're tailoring it to meet this range of needs."

"When we started training activities it was largely conceived as a way to teach very specific technical skills," explains Harvey. "As the uptake of our service has broadened, our training – delivered through the Graduate School – is now focused on ensuring postgraduates and early stage researchers are equipped with the fundamental skills needed to enable them to use HPC and associated IT effectively in their research."

With these different levels of support and accessibility behind the actual computing power itself, the Service is aiming to cater to the increasingly diverse needs of Imperial's research community. "I enjoy the substantial technical challenges in delivering this type of service while meeting the College's changing requirements," says Matthew. "It's great to be able to interact with such a cross section of the research community and to see the direct correspondence between the service we offer and the scientific output of the College's researchers." ●

RESEARCH NOTES

APRIL–JULY 2019

Borneo, bones and bugs

SCIENCE

Rainforest radio

Audio recorders have been installed in the rainforest of Borneo, enabling researchers and the public to listen in 24/7. This is the latest step in a study to determine how land use affects local biodiversity, and what conservation measures are most effective.

▶ **FULL STORY: bit.ly/reporter311-rainforest**

£20 million

The combined funding from the MRC, Alzheimer's Society and Alzheimer's Research UK for the new Dementia Research Institute which will create dementia-friendly 'Healthy Homes' and provide insights into how dementia develops.

▶ **FULL STORY: bit.ly/reporter311-dementia**

> **RESEARCH HAS SHOWN THERE IS A REAL GROWTH MARKET OPPORTUNITY IN INSECT FOOD PRODUCTS, IF ONLY WE ARE SMART ABOUT HOW WE TEMPT CONSUMERS.**

Dr Tilly Collins on investigating the Western 'disgust factor' to eating insect-based foods, and how to overcome it to make the most of the environmental, health and economic benefits.
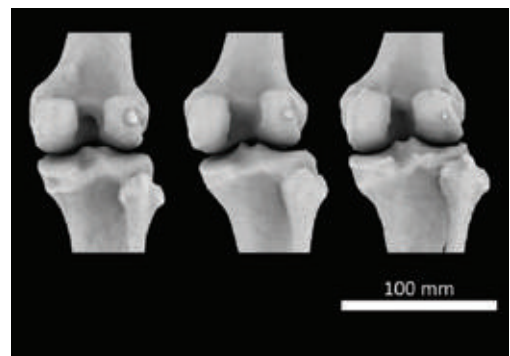
▶ **FULL STORY: bit.ly/reporter311-insects**

ENGINEERING

Bony business

The fabella, a small bone in the knee once lost to human evolution, has made a surprising resurgence over the last century. The finding from Imperial bioengineers could provide insight into human evolution over the past 100 years.
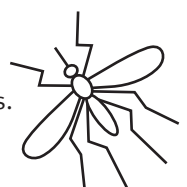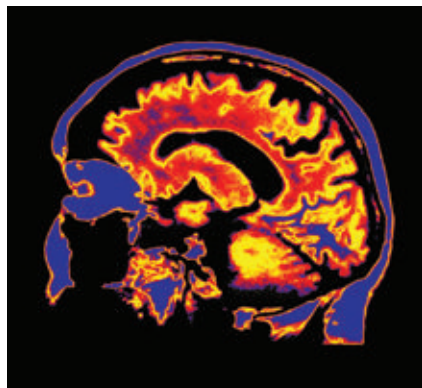
▶ **FULL STORY: bit.ly/reporter311-fabella**

SCIENCE

Overcoming resistance

Researchers have overcome malaria parasites' resistance to potential new drugs by studying how it evolves. The finding could form the basis of the next generation of therapies for the disease.

▶ **FULL STORY: bit.ly/reporter311-resistance**

MEDICINE

Mind expanding research

The first formal centre for psychedelic research in the world has launched at Imperial. It will investigate the efficacy of psilocybin therapy as a licensed treatment for depression and other conditions including anorexia.

▶ FULL STORY: bit.ly/reporter311-psychedelic

112 million

The number of adults whose height and weight were analysed in a 33-year study, revealing that obesity is increasing more rapidly in the world's rural areas than in cities.

▶ FULL STORY: bit.ly/reporter311-obesity

WE KNOW THAT EXPOSURE TO ALCOHOL MARKETING FOR CHILDREN IS ASSOCIATED WITH INCREASED DRINKING AT EARLIER AGES AND AT HAZARDOUS LEVELS.

Dr Tim Chambers on May's episode of the Imperial College Podcast, sharing his work on the impact of alcohol marketing on children.

▶ LISTEN TO THE PODCAST: bit.ly/reporter311-podcast

Air pollution exposure is responsible for a variety of negative health impacts – from asthma, to cancer and impaired cognitive development.

▶ FULL STORY: bit.ly/reporter311-pollution

Learning beyond digital

Gideon Shimshon and the Digital Learning Hub are supporting Imperial staff and students to build a vision of the future of teaching and learning.

Gideon Shimshon
DIRECTOR, INNOVATION AND DIGITAL LEARNING, DIGITAL LEARNING HUB

Gideon Shimshon is responsible for designing and delivering on Imperial's Digital Learning Strategy and increasing the level of online and digital innovative education-related activity across the College. Motivated by his passion for learning and teaching, Gideon leads a diverse portfolio of projects that examine the future of digital and campus education.

> **AFTER TAKING THIS COURSE, I HAVE ENOUGH TOOLS TO DISCOVER MORE ABOUT MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE.**
>
> Phu, Mathematics for Machine Learning learner, Coursera

STUDENTS' EXPECTATIONS OF EDUCATION are changing. At the same time, digital technology is providing new ways of conveying information and sharing knowledge. Drawing on Imperial's strengths across innovation, technology and entrepreneurship, we are perfectly positioned to build our vision of the 'classroom of the future'.

Imperial's Digital Learning Hub (DLH) is at the heart of the supportive environment we offer our staff and students. We are developing new learning and teaching environments and technologies, designed to help inform the transformation of Imperial's existing teaching spaces and support new initiatives. Having a 'home' for digital learning at Imperial is important. It makes our work tangible and emphasises just how much progress we've made in two short years.

The new DLH space was opened in April 2019 at our South Kensington Campus, comprising workspace for staff from multiple departments, an experimental classroom, a digital teaching room, workshop space, and a bespoke film studio. It was created based on the latest research and developments in learning space design as an area for collaboration across the College so that we can work together with staff, academics, students and external stakeholders to design and deliver new ideas. It will also serve as a showcase space for some of our most exciting innovations.

We've developed a range of new digital programmes across departments, such as the Global Master's in Public Health and the Master's in Machine Learning for Data Science. These programmes also feed into the review of on-campus student experience, services and processes, such as admissions, student support, library use and assessments. Creating new approaches, or adjusting existing processes, to deliver these services for digital and online programmes provides the opportunity to integrate digital elements into the programmes we deliver

on campus. It also means that our students can participate in the design of new digital learning tools and technologies, some of which will be integrated into on-campus and digital courses.

Our ambition goes beyond changing the learning experience at our own campuses. We want to have an impact on society at large through providing learning opportunities that are open and accessible globally. The DLH has a number of courses available on online education platforms EdX and Coursera, with over 150,000 learners from 186 countries, 24 per cent of whom do not already hold a degree. Having free online courses that are available to everyone with an internet connection means that a larger and more diverse audience has access to content usually only available to a limited number of students on campus.

In all the new programmes we're creating, we are aiming to combine Imperial's long-standing expertise in science, technology, engineering, mathematics and medicine (STEMM) disciplines with new innovations in digital learning. One of my favourite examples is the Clean Power Programme we've created alongside the Grantham Institute, which combines public policy with important technical concepts that are relevant to power systems. This will provide a relevant and immediately applicable learning experience for policymakers and business professionals, helping to tackle the global challenge of how to clean up our power supplies.

Our latest online Master's in Data Science for Machine Learning is being developed in partnership with Coursera and will teach students the computational, mathematical and statistical basis of the subject. The Master's was prioritised owing to the enormous demand for Artificial Intelligence (AI) professionals globally, and as the sector is estimated to contribute £630 billion of value to the UK economy alone by 2035. The next generation of machine learning and AI leaders will have to be prepared not only to exploit these opportunities, but also to grapple with multiple global challenges. ●

FEEDBACK FROM STUDENTS

"I am taking this maths course for two main reasons. First, as a refresher after more than ten years hiatus. Second, for preparation as a volunteer to tutor high school students, especially grade nine students experiencing difficulty transitioning from grade eight. I look forward to the challenge!"
Max, A-level mathematics learner, Edx

"My parents are from Algeria and then moved to France and after moved to England. I am ten and am starting this course to deepen my understanding in Maths and get a certificate so I will have a better reputation and have more chance to have a good job."
Alex, A-level Mathematics learner, Edx

There are many more exciting developments coming up in the 2019–20 academic year. If you're a teacher or a student who has a digital learning idea, join us on our journey.

▶ **GET IN TOUCH: digitallearning@imperial.ac.uk**
www.imperial.ac.uk/digital-learning-hub

3D printing collaboration

A new 3D printing module aimed at Year 3/4 MEng Engineering students is breaking new ground with its skills-focused syllabus.
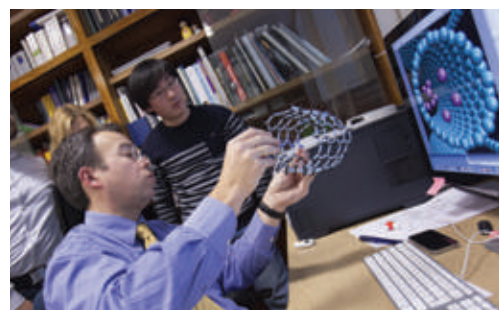
Course leaders Dr Connor Myant and Dr Ajit Panesar have created a module that focuses less on the technology available right now, and instead provides students with the theory and skills necessary to work in design engineering in the future. A number of industrial partners have been involved in the development of the module and have visited the Dyson School of Design Engineering to speak with students and inspire them to tackle global challenges.

Machine learning

Machine learning algorithms are being deployed in Department of Chemical Engineering classrooms for the first time.

The potential of machine learning is rarely exploited in subjects not directly related to computer science, but many academics and teachers recognise that its data-crunching capabilities can be put to good use in a wide variety of situations.

Education week

During May, teaching teams from across the College celebrated their hard work with the inaugural Education Week at Imperial. Centred upon the longstanding Education Day conference, learners and teachers took the opportunity to share best practice and highlight members of the community that have contributed to transforming teaching at Imperial.

LONG SERVICE

Staff featured in this column have given many years of service to the College. Staff listed celebrate anniversaries during the period 2 April–1 August 2019. The data are supplied by HR and correct at the time of going to press.

30 YEARS

- Graziela De Nadai, Section Administrator, Physics
- Dr Robert Dickinson, Senior Lecturer, Surgery and Cancer
- Louise Lindsay, Director of HR and Organisational Change, Human Resources
- Lee Parker, Technician, Physics
- Professor Nilay Shah, Head of Department, Chemical Engineering
- Fraser Wigley, Building Manager, Estates
- Professor Daryl Williams, Professor of Particle Science, Chemical Engineering
- Dr Huw Williams, Reader in Microbiology, Life Sciences
- Professor Lan Zhao, Professor of Experimental Medicine, Medicine

40 YEARS

- Professor David Potts, Civil and Environmental Engineering

SPOTLIGHT

FRASER WIGLEY
30 YEARS

❝ I first joined Imperial as a researcher, but I also taught for over 20 years. One of the most rewarding things about teaching is seeing the light go on in someone's eyes when they realise they understand something.

I've moved sideways several times – you can only really do that within a large and diverse organisation like Imperial. The College has lots of different career development packages which I've really benefitted from. I now work in the Estates team, managing several buildings on the South Kensington Campus. Our ability to manage buildings has become more sophisticated, but ultimately it boils down to personal contact. You need to talk to people face to face; having friends in high (and low!) places helps you get things done. I'm taking early retirement at the end of July. I'll miss never quite knowing what the next day will bring – that's what makes working here so interesting.

HONOURS

❝

EVERY OPPORTUNITY WE SHAPE AND EVERY NEW RELATIONSHIP WE HELP DEVELOP MAKES ME PROUD. THE PROJECTS, INDUSTRY-FUNDED CENTRES, TECHNOLOGY LICENSES AND STARTUPS WE SUPPORT WILL HAVE IMPACT IN SO MANY WAYS.

Dr Rebeca Santamaria-Fernandez, Director of Industry Partnerships and Commercialisation and winner of the President's Medal for Research Support Excellence, Corporate Partnerships.

Professor Alice Gast presented the 2019 President's Awards for Excellence to staff in June. 15 medals were awarded across the four award streams: culture and community, education, research, and societal engagement.
▶ FULL STORY: bit.ly/reporter311-excellence

COLLEGE

Royal honours

Congratulations to Professor David Southwood CBE, Professor Gerry Thomas OBE, and Dr Jess Wade BEM, who were recognised in the Queen's Birthday Honours list.
▶ FULL STORY: bit.ly/reporter311

COLLEGE

Who are Imperial People?

The Imperial People campaign aims to shine a light on underrepresented areas of the College and give a better sense of how Imperial ticks. Look out for staff members featured on our channels each week.
▶ NOMINATE AN IMPERIAL PERSON: m.nahar@imperial.ac.uk
wwwf.imperial.ac.uk/blog/imperial-people

What is the Race Equality Charter?

Run by AdvanceHE, the Race Equality Charter (REC) aims to improve the representation, progression and success of Black, Asian and Minority Ethnic (BAME) staff and students within higher education. In January 2018, Imperial became a member of the REC and we are working towards applying for our Bronze award. We catch up with Sally Parekh who is coordinating the College's application process.

Like Athena SWAN, the REC is a long process – a minimum of 18 months spent gathering data, analysing results, and then putting together a detailed action plan. I'm working with our self-assessment team, 24 staff and student representatives from across the College, and we're aiming to submit our action plan to AdvanceHE in July 2020.

We're currently analysing results and I'd like to thank the 2,000 staff and students who responded to the REC surveys last autumn. People were really open about their personal experiences of working and studying here at Imperial.

As well as experiences relating to race, I was really struck by some of the comments on other inequalities. A lot of cleaning staff said they enjoy working here but they feel invisible – they say hello and rarely get a response. That was really heart-breaking to read. We want to use the REC process to make Imperial a fairer and kinder work environment for everyone.

One theme from the comments that I didn't expect was people questioning why we're taking part in the REC at all. Some people feel that Imperial is a merit-based institution and that we've achieved racial equality already. Although it may not affect everyone directly, and is rarely overt, this doesn't mean racial inequality is not a reality for many colleagues and students.

The issues we face here are not unique. The UCU recently published an excellent report on the career experiences and strategies of UK black female professors and found that black women make up just 0.1 per cent of active professors in the UK compared with the 68 per cent who are white men – and they have to overcome bullying, stereotyping and institutional neglect in order to win promotion.

As well as the REC survey data, we're also looking at the 2019 Staff Survey results alongside general College data, for example on promotions and student attainment. There'll another chance to feed into the action plan at a series of staff and student focus groups later in the year. There's also lots of information on the REC website and the self assessment team is available to answer questions.

Structural inequality didn't happen overnight – it was built up over centuries, so unfortunately dismantling it isn't going to happen overnight either. But we are determined to be an institution that recognises the many strengths that flow from diversity and where everyone feels valued and included.

▶ **MORE ABOUT IMPERIAL AND REC:**
www.imperial.ac.uk/equality/accreditations/rec

68%
Professors in the UK who are white men

0.1%
Professors in the UK who are black women

REVIEW

Exploring the extraordinary

THE GREAT EXHIBITION ROAD FESTIVAL, 28–30 JUNE 2019

Since the Great Exhibition of 1851, Exhibition Road has been home to a global community of forward-thinking scientists, engineers, artists and educators. In June, more than 20 institutions came together to celebrate innovation on and around this revolutionary road – at the first ever Great Exhibition Road Festival.

Building on the success of Imperial Festival, which is now in its eighth year, the three-day event saw Imperial throw its doors open for a unique programme of workshops, talks, exhibitions and performances. Organisations from in and around South Kensington joined together to entertain more than 45,000 visitors across the weekend, including the Royal Commission for the Exhibition of 1851, Discover South Kensington, the Royal Albert Hall, the V&A, the Science Museum, the Royal College of Music and the Natural History Museum.

As part of the weekend's 150 live events, Imperial staff and students showcased science and discovery through ten interactive 'zones'.

Each zone offered exciting activities for all the family, from live experiments to creative workshops. In the Greener Futures Zone, Imperial experts gave scientific insight into breakthroughs that could pave the way to a more sustainable future. The Robot Zone explored how bots are being used to improve our homes, healthcare and cities, and other exhibits investigated the effect plastic pollution is having on our oceans. Prince's Gardens was also brought to life with sights set to inspire the next generation of scientists.

This year's Festival provided the perfect habitat for exclusive collaborations between world famous institutions, combining science

45,000+
Visitors to the Festival

750
Scientists, researchers and clinicians in attendance

with the arts. Guests could explore everything from a museum of food session, to a discussion about what music tells us about our brain. The Royal College of Music offered families the chance to play brass instruments in a series of 20-minute workshops, and budding astronauts were in their element at Imperial's Space Zone, with children dressing up and making moon magnets.

The Great Exhibition Road Festival 2019 was inspired by the spirit of innovation prized by Queen Victoria and Prince Albert. Some 200 years after their births, Exhibition Road remains a world leading centre of interdisciplinary study and research. Next year's Festival is set to be held on 3–5 July 2020.

Summer/autumn at Imperial

Enjoy summer days in London, and make a note of key dates in your diary for the new academic year.

▶ SIGN UP FOR A FULL EVENTS LISTING: www.imperial.ac.uk/ whats-on

HIGHLIGHTS

13 MAY–26 AUGUST

Victoria and Albert's Museum

An exploration of the role that the royal couple played in the formation of the iconic museum.

V&A, Exhibition Road

24 JULY, 12.00–17.00

Bugs, Birds and Beasts Day

It's back! Join us for a fun packed day of exploring the natural world.

Silwood Park Campus

16 OCTOBER

Commemoration Day

Friends, families and academic staff come together for a highlight of the academic year – graduation.

Royal Albert Hall, South Kensington

MAY–OCTOBER

Expeditions and Endeavours

A rare opportunity to see original illustrations and photographs from early explorations of the natural world.

Natural History Museum, Exhibition Road

1 AUGUST, 13.00–14.00

Vegetarian diets and plant foods for chronic disease prevention

With Dr Dagfinn Aune and Dr Keren Papier, University of Oxford.

Hammersmith Campus, Seminar Rooms 1 and 2, Wolfson Building

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17 SEPTEMBER, 17.30–18.30

Automating Science Using Robot Scientists

The first of a series celebrating five years of the Data Science Institute.

ACE Extension, Room 250, South Kensington Campus

2 OCTOBER, 17.30

Inaugural lecture: Professor Jason Hallett

Professor of Sustainable Chemical Technology in the Department of Chemical Engineering.

South Kensington Campus

9 OCTOBER, 17.30

Inaugural lecture: Professor Gareth Tudor Williams

Professor of Paediatric Infectious Diseases in the Department of Medicine.

South Kensington Campus

30 OCTOBER, 17.30

Inaugural lecture: Professor Emil Lupu

Professor of Computer Systems in the Department of Computing.

South Kensington Campus

Sudoku

Difficulty level: medium

Find the solution to this puzzle on the Reporter website at **www.imperial.ac.uk/reporter**. If you'd like to submit a puzzle of your own, drop us a line at **reporter@imperial.ac.uk**.

5				2	8	3		6
6	7						4	
			5			8	9	
			9	2				
	9	4				2	1	
		1	4					
	5	3		6				
	6					3	7	
8		7	2	3				9

Can you volunteer at Commemoration Day?

Help make Commemoration Day extra special by volunteering your time this October. Find out more and register by Monday 7 October.

▶ **GET INVOLVED: bit.ly/reporter311-graduation**

Stonewall Employee Feedback Survey

The Stonewall Employee Feedback Survey on LGBT+ inclusion is a chance for Imperial to measure its progress and get a realistic picture of the impact of current LGBT+ policies and practices. The survey is open to all staff, anonymous and completely confidential.

▶ **TAKE PART: bit.ly/StonewallSurvey2019**
(Use the code 1299 to record your response for Imperial).

Ibiza @ Imperial

Thanks to all the members of the Support Staff Social Committee for organising the fantastic Ibiza-themed summer party!