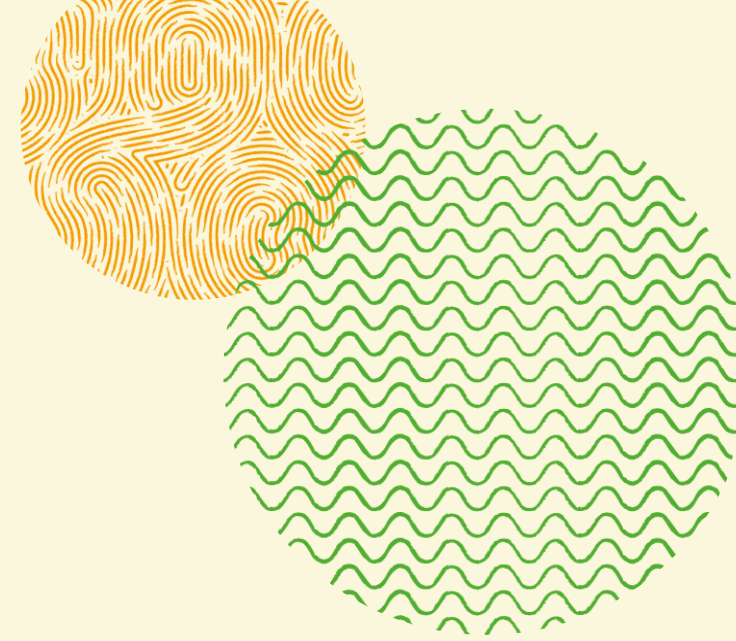


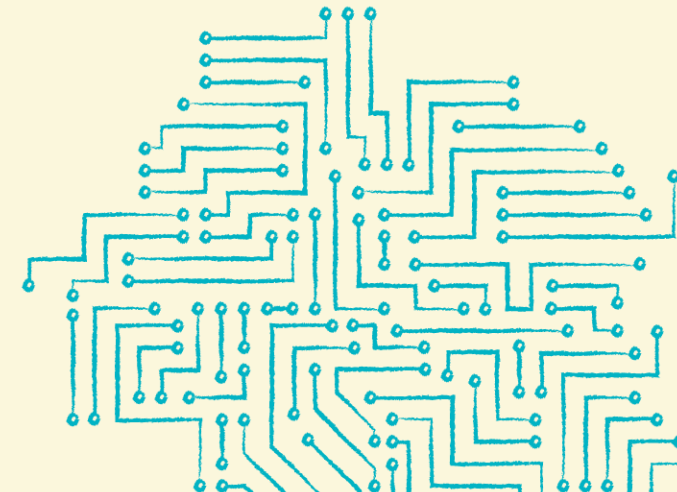
IMPERIAL



Engagement Academy

Project Summaries

Societal Engagement
24/04/2024



Engagement Academy

Overview

Each cohort of this staff training programme explores the evolving relationship between research and society to develop their public engagement practice through study, active experimentation and reflection.

The [Engagement Academy](#) is delivered by [Imperial's Science Communication Unit](#) and [Public Engagement Team](#).

It is accredited by [The Institute of Leadership](#) in line with the Higher Education Academy.

What does the Academy involve?

- Seven days of seminars, practical workshops, visits and group discussions
- Internal and external speakers
- Reading and activities between sessions
- Developing, delivering and evaluating their own practical engagement activity with support and feedback from session leaders, mentors and peers

2023-2024 Staff

Engagement Academy

Science Communication Unit

A team of practitioners and researchers delivering internationally-renowned masters courses which combine media training with academic perspectives.

Dr Felicity Mellor (she/her)

Julia Pitts (she/her)

Dr Kanta Dehal (she/her)

Gareth Mitchell (he/him)

Public Engagement Team

Central team of practitioners supporting staff and students to engage diverse audiences with Imperial's work through exchanging ideas and experiences.

Vicky Brightman (she/her)

Dr Amy Seakins (she/her)

Charlotte Coales (she/her)

Maria Serveta (she/her)

2023-2024 Cohort

Engagement Academy

Aba Adebajo (she/her) Outreach

Sarindi Aryasinghe (she/her) Surgery & Cancer

Alexander Bailey (he/him) Life Sciences

Sara Barnett (she/her) Metabolism, Digestion and
Reproduction

Diana Cano Bordajandi (she/her) Earth Science
and Engineering

Jack Cooper (he/him) Global Health Innovation

Ines Diaz del Olmo (she/her) Infectious Disease

Lucile Genin (she/her) Central Faculty

Julie Hoang (she/her) Bioengineering

Jose Jimenez (he/him) Life Sciences

Ayesha Khan (she/her) Aeronautical Engineering

Pallavi Nair (she/her) Primary Care and Public Health

Rakhee Parmar (she/her) Infectious Disease

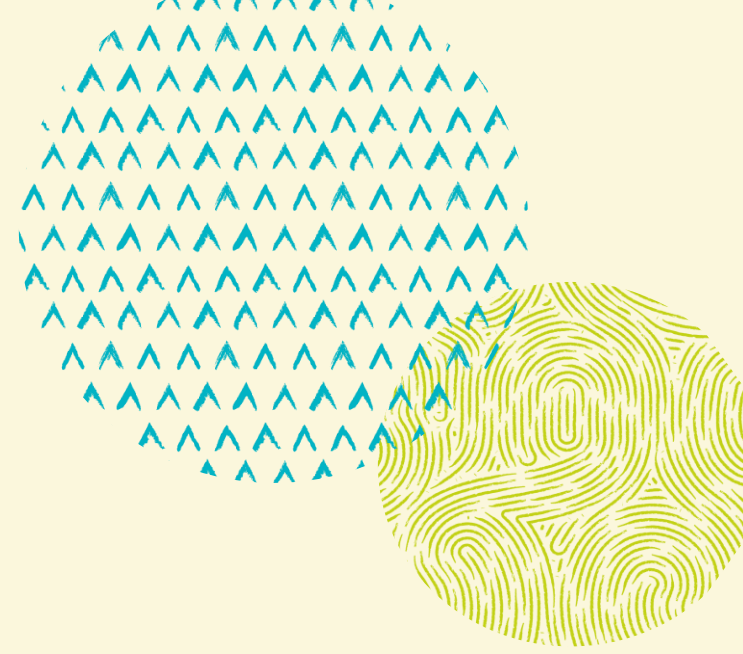
Zuzanna Rydz (she/her) Civil and Environmental
Engineering

Amy Smith (she/her) Bioengineering

Sze Wing (Tweety) Tang (she/her) Bioengineering

Alice Witt (she/her) George Institute for Global Health

Peng Yan (he/him) Chemical Engineering



Project Summaries

Academicians developed a range of projects to engage audiences

Aba Adebajo (she/her)

Outreach

STEM careers advice for ... parents!

As a secondary teacher at parents' evenings, I would meet at least one parent of a science student who would tell me that their son will become a doctor, to which the child would nod reluctantly. The parent was coming from a place of love, wanting to raise a financially independent adult but lacking knowledge of the variety of career routes available.

This inspired my engagement idea to target parents of 14–18-year-old participants of our [Outreach, Maker Challenge programme](#). The idea is to run a career information evening on transitions at 16-18 years old to apprenticeships, further education, higher education, gap years etc. This would allow parents to become better informed about the various careers routes available that could best suit their child.

If you could be effectively informed about possible career routes to advise the next generation of talent coming through, wouldn't you do so?



Sarindi Aryasinghe (she/her)

Surgery & Cancer

Tackling ethnic/racial inequities in maternity care

Evidence shows that Black and Black identifying women and pregnant people experience worse care and health outcomes compared to White women. In Northwest London, the NHS, the local councils and the voluntary sector provide different aspects of maternity care. However, there is not yet a way for all these organisations to work together with Black and other minority ethnic women to develop, deliver, and assess maternity services as one team.

Over four years, my research aims to develop and evaluate a co-production mechanism in which organisations and Black women work together to improve the maternity care experience.

The project involves service users and health and social care stakeholders to:

- Prioritise co-production improvement areas
- Co-design a service improvement
- Evaluate the impact of the service improvement.

Research activities will also be co-produced by a group of Black and Black identifying women and pregnant people.



Alexander Bailey (he/him)

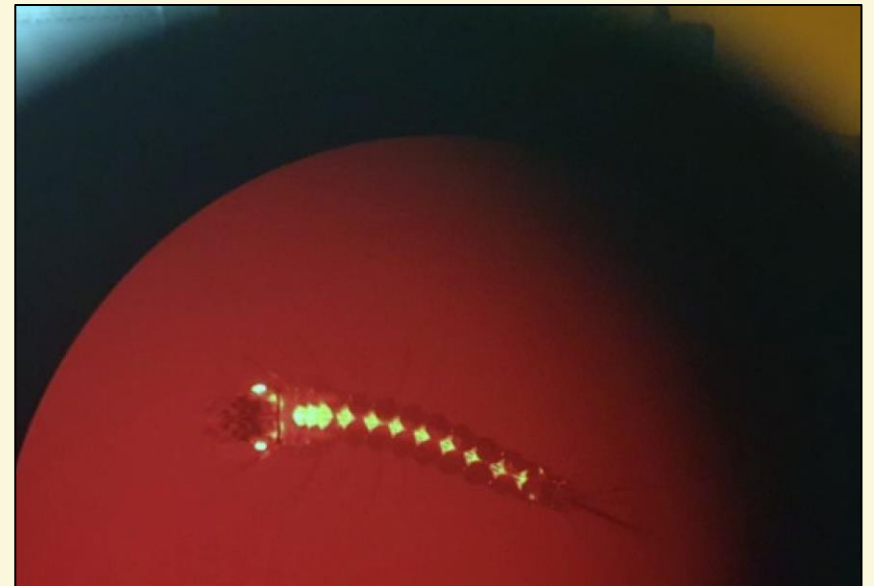
Life Sciences

Could genetically modified mosquitos help fight malaria?

I am planning to run an exhibition at a Lates event to engage a science-interested adult audience in our work. We make genetically modified mosquitoes that are resistant to malaria. Coupled with a technology called gene drive, this could make whole wild populations unable to spread malaria, therefore stopping disease transmission.

The aim of the engagement is to give attendees a fun and memorable experience whilst informing them about cutting-edge technology we are developing to stop malaria and to gather their opinions on genetic modification. From our side, I also aim to increase lab members' experience with engagement and outreach, and articulating the complex science we do.

The intention is to have multiple interactive exhibits, including mosquitoes themselves(!), to walk people through our work, and give them a story to share when they get home.



Sara Barnett (she/her)

Metabolism, Digestion and Reproduction

Background: Whooping cough (Pertussis) in babies is a highly contagious bacterial disease that spreads rapidly through airborne droplets. The introduction of vaccines to protect children dramatically reduced childhood mortality, but vaccines are not effective in the first 2 months of life. The Pertussis vaccine in pregnancy helps bridge the immunity gap from birth.

Problem: Today a significant number of pregnant women are not being vaccinated against whooping cough, leaving babies at risk of being infected. Uptake of the vaccine is particularly low in minority ethnic groups.

Intervention: I offer local community groups, for whom English is their second language, an opportunity to discuss and engage with the importance of maternal vaccinations by:

- Creating a safe space for the discussion and education of maternal vaccines
- Building trust and confidence in vaccinations
- Engaging and educating in informal, interactive, and creative sessions.
- Conveying the safety and benefits of vaccinations for mothers and children.



Diana Cano Bordajandi (she/her)

Earth Science and Engineering



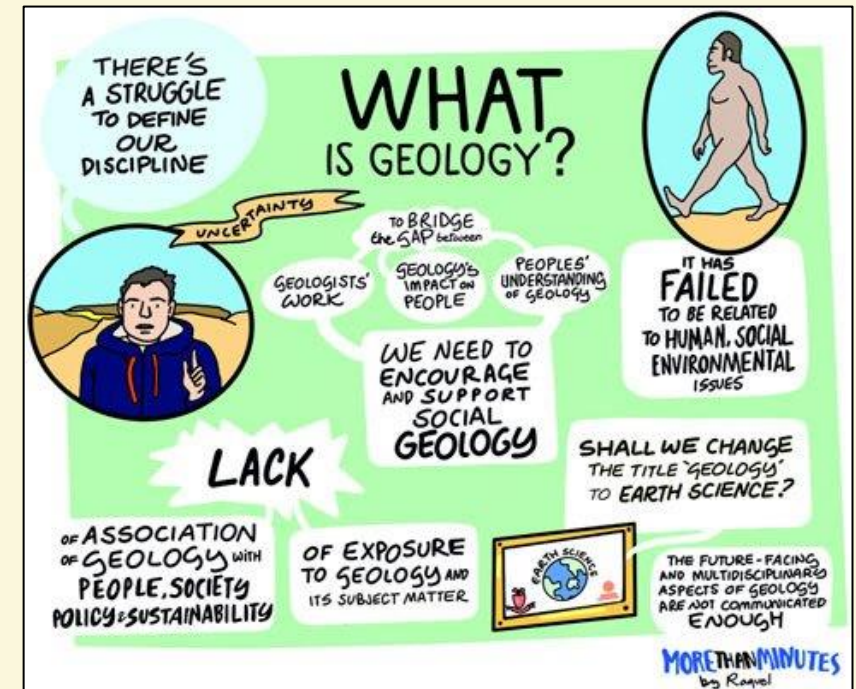
Inspiring interest in Earth Science through teacher workshops

Applications to Earth Science/Geology programmes at University are going down nationally.

A recent survey published in Earth Science, Systems and Society (Rogers et al., 2024) attributes this decline to limited exposure to the subject at earlier educational levels – and suggests that non-geologists perceive the subject as old-fashioned, boring, environmentally harmful, and with limited job prospects.

To better communicate Geology's interdisciplinary nature and societal relevance (including its role in addressing critical issues like climate change) to secondary school students, I plan to deliver workshops for teachers in relevant areas such as geology, maths, physics, chemistry, and geography.

My objective is to raise awareness of Earth Science as a subject and provide insights into university-level Earth Science education, as well as potential career paths, through these 'train the teacher' events.



Jack Cooper (he/him)

Institute of Global Health Innovation (Fleming Centre)

Cell Biology Poetry Workshops, Great Exhibition Road Festival 2024 and beyond!

Scientists and poets will work together to engage attendees with core and cutting-edge cell biology concepts: inspiring them to write their own cell-themed poems.

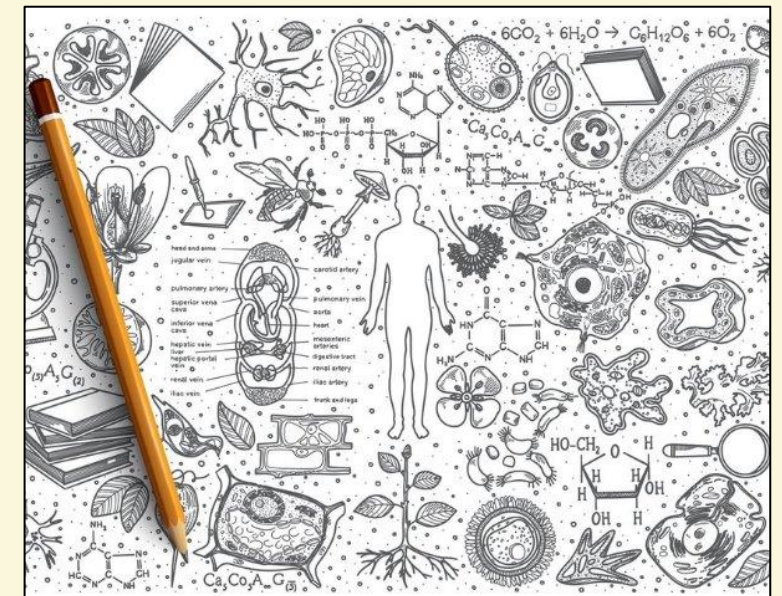
If you can better understand cells, you better understand your own body and many aspects of health and disease (including antimicrobial resistance).

There will be three tiers of activity complexity, meaning all ages can take part, but the focus audience will be Key Stage 2 and Key Stage 3.

I will pay special attention to evaluation, which was one of my main goals for the academy.

I may also deliver these workshops for the Science Museum on a separate occasion, in tandem with other projects.

Additionally, while I was in my previous role with ISST, I spent time conceptualising a board game based on navigation technologies. While I won't take this forward, I am interested in applying what I learned to an AMR activity.



Ines Diaz del Olmo (she/her)

Infectious Disease

Infection Investigation - A Hands-On Lab Experience

This activity aims to stimulate young adult's interest in science by engaging in a hands-on experience of working in a laboratory and learning about microorganisms and the immune system.

The activity is designed to last one hour and targets young adults who are not used to interacting with scientists and are unfamiliar with scientific environments. It consists of infecting immune cells with bacteria and visualizing the process under the microscope.

Led by laboratory scientists, participants will learn skills, such as pipetting, infecting cells and using a microscope. They will also discuss how bacteria attack our bodies and how the immune system defends us against them. Moreover, laboratory scientists will guide participants in understanding what it means to be a scientist and offer guidance on pursuing a career in science, while fostering a perception of researchers as approachable individuals.



Lucile Genin (she/her)

Central Faculty

Disorder creates sciences (temporary title)

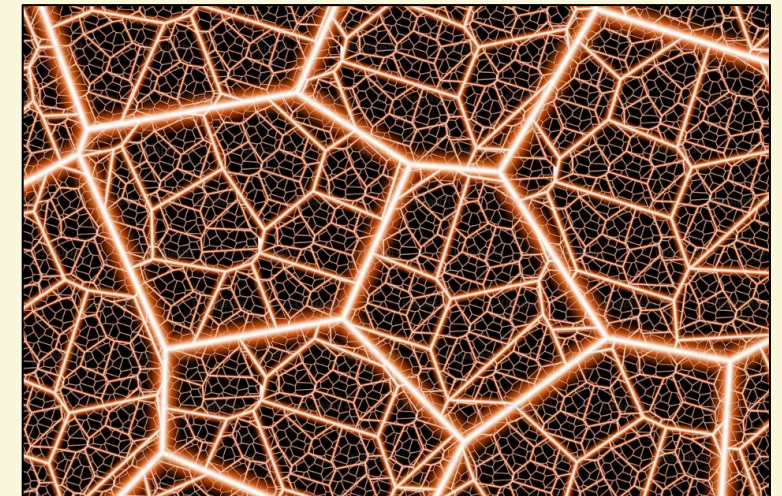
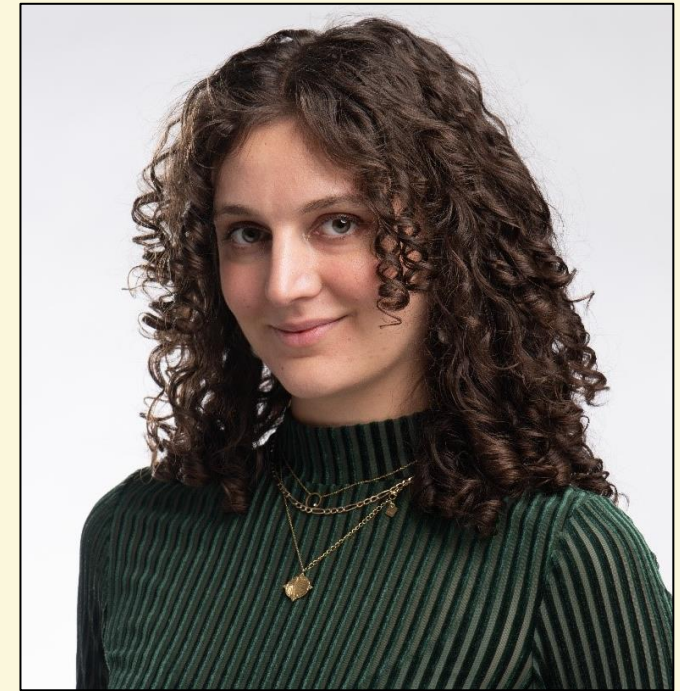
A collaboration between a CNRS researcher who works on nano luminescent cells (Aurelie Bessiere) and one or two Imperial academics working within the [CNRS-Imperial International Research Center](#) (IRSC) to bring their examples of how flaws and errors led to a new pathway of cutting-edge science and exciting discoveries.

Format: A demo stand where academics from the CNRS-Imperial International Research Center will present convergent sciences around the theme of the “disorder in natural sciences”. The demonstration will be at the merger of arts and sciences and will demonstrate the diversity of international partnerships. The stand will be in the science and arts zone of the [Great Exhibition Road Festival 2024](#).

Audience: Adults/ Young Adults with an interest in sciences.

Key message: Science builds on various strange/ unexpected variations and exceptions that escape rules, but once identified have helped scientists make huge progress.

Benefits: Creating and strengthening connections within the CNRS-Imperial IRC.



This image draws from Bessiere's (the CNRS researcher) work on nano luminescent cells but also on the messiness of nature and the connectivity in international partnerships that lead to great discoveries.

Julie Hoang (she/her)

Bioengineering

Playful Learning: communicating biomedical sciences and engineering

In the Department of Bioengineering, I teach on a module called Communicating Biomedical Sciences and Engineering where undergraduate students are hosted in schools to deliver engaging STEM based learning experiences to students.

To encourage the use of informal, play based learning strategies I wanted to showcase a selection of playful learning activities that would be suitable for students of secondary school age.

Supported by Engagement Coordinator Maria Serveta, we were able to set up 7 playful learning activities for our students to engage with to dispel misconceptions that play is messy, unintellectual, risky, unstructured and does not result in measurable learning outcomes and instead understand that playful learning can be meaningful, actively engaging, iterative, socially interactive and fun!



Jose Jimenez (he/him)

Life Sciences

Increasing microbial literacy in primary education

Microorganisms play an extremely important role at keeping a healthy planet and are used in numerous applications in our daily lives. However, microbiology as a discipline is not taught until secondary school and is often taught in the context of disease, which generates biases regarding the perception of microorganisms.

With this activity I aim to raise awareness about the importance of microorganisms in a workshop for children nearing the end of primary education with three main learning outcomes, microorganisms are: 1) everywhere 2) important and 3) useful.

The workshop is designed to run in two 1-hour long sessions taking place on consecutive days. A series of activities show how to isolate microorganisms from different sources, monitor microbial spread by shaking hands with a dye, setting up a long-term biodegradation experiment in the classroom and demonstrating the use of microbes in biotechnology by making yogurt using milk and live cultures.



Ayesha Khan (she/her)

Aeronautical Engineering

Unravelling the secrets of flight

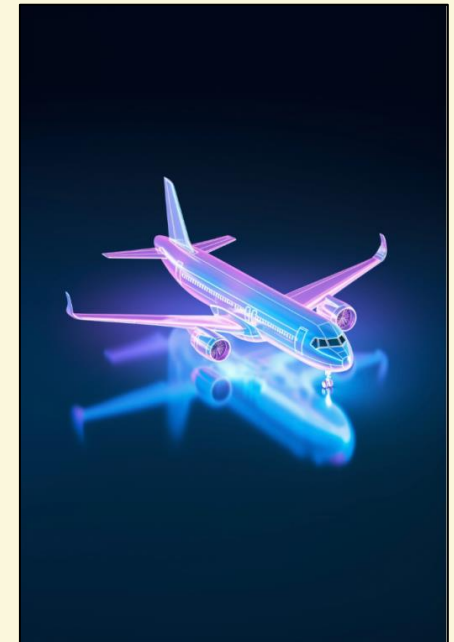
In this interactive workshop, aimed at 14–18-year-olds, students will dive into the captivating realm of flight, uncovering how birds glide effortlessly through the air and how humans have harnessed the power to conquer the skies through innovative technologies.

Students will make their way around five different workstations, each providing activities aligned to a different aspect of flight science - lift, drag, thrust, weight and wing shape.

There will then be an opportunity to plug in different technical aspects they have learnt about, as they fly an aeroplane using VR.

I aim to deliver this activity within schools or by inviting students to visit Imperial. The session will be co-lead with a researcher.

This engagement activity would provide individuals with a unique opportunity to apply new knowledge in a practical way, as well as sparking curiosity and fostering a passion for engineering.



Pallavi Nair (she/her)

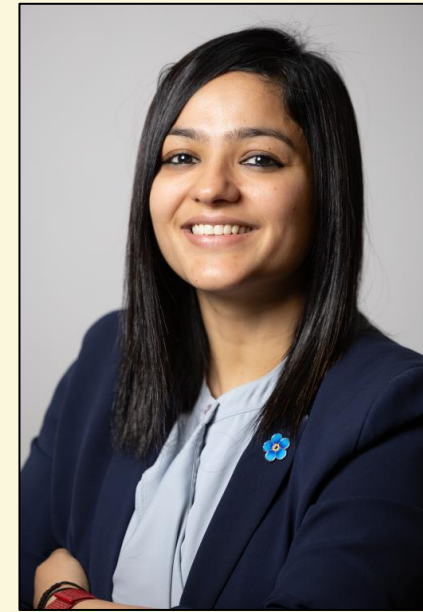
Primary Care and Public Health

Understanding Dementia and Embracing Communities

Dementia, often misunderstood and stigmatized, is not a natural part of aging but rather a progressive condition affecting memory, thinking, and behaviour. My engagement activity aims to shed light on dementia, reduce stigma, and create an inclusive environment for those affected or at-risk.

In collaboration with Mother's Union, our community event highlighted what is and what is not normal with aging, challenged stereotypes through a "Myth vs. Fact" check, showcased lived experiences and engaged participants with brain-gym exercises. This event was met with enthusiasm and an appetite for knowledge.

Next steps involve collaboration with Community Support Hubs, local GP practices, the Alzheimer's Society, and Dementia Researchers to enhance and sustain engagement. Together, we will conduct a series of community engagements to raise awareness about dementia, share the latest research, and simultaneously facilitate basic health checks and check-ins with GPs or community support staff. This multifaceted approach will advance knowledge about dementia, empower communities, nurture compassion, and advocate for brain health.



Rakhee Parmar (she/her)

Infectious Disease

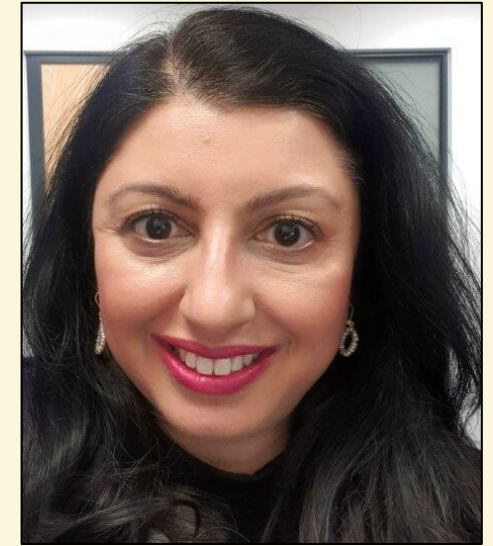
Antibiotic Citizen Engagement (ACE) project

My engagement activity, the ACE project, was developed to engage young people as Citizen Scientists to help better understand behaviours around antibiotic usage, what the public already know about antimicrobial resistance (AMR), how scientists can design improved health information as well as raise public awareness.

A pilot is planned this summer with a primary school in three stages: 1) I will deliver an interactive lesson “Build a Bug” about bugs and resistance. 2) Outside the classroom, the budding Citizen Scientists will carry out a short survey with adult family members about their usage and understanding of antibiotics and record answers in either a paper booklet or on a data collection app called EpiCollect. 3) At the final session I will demonstrate the results from the survey in an interactive data session.

The aim of the project is to involve young people to help improve awareness and understanding about antibiotic usage and AMR in their communities.

The data collected will help researchers with their studies about behaviours around antibiotic usage. I plan to roll out the project to more schools following feedback from the pilot.



Zuzanna Rydz (she/her)

Civil and Environmental Engineering

“Become a Coral Reefs Superhero!”

For many years, the coral reefs near Tianyar village, North Bali were bearing witness to the excavation of the seabed. Corals were being destroyed by humans and the situation reached a critical juncture where there was not enough fish to feed the village.

Over 70% of the oxygen we breathe is not produced by trees but by the ocean. Underwater, there are 94% of the world's species, which makes it the most biodiverse environment. As the steward of sustainability at Imperial College, I am amazed by the tales woven within the depths of our oceans. Delving into the azure expanse as a scuba diver, I am witness to the delicate ballet of life that unfolds beneath the waves.

Let's turn ourselves into coral conservationists and help us to build artificial reef structures, the same as volunteers in North Bali Reef Conservation are setting up on the seabed in Indonesia as we speak.



Amy Smith (she/her)

Academic Services

Bioengineering – where could we go?

My engagement event is designed to raise the awareness of Bioengineering as a possible option for undergraduate study.

The event itself will be an exhibition run during open days and offer holder days, showcasing items from the research history and advancements made by the department and the academics within the department. The event will be interactive, with a fact scavenger hunt type work sheet provided to students to promote engagement. The aim of the engagement is for prospective applicants to consider Bioengineering as a possible area of study at undergraduate level, as well as providing an insight into what Bioengineering is.

The wider aim is to increase the number of Home students applying to the department, particularly from Widening Participation students from under-represented backgrounds. The event should be eventually refined and scaled down to take into schools.



Size Wing (Tweety) Tang (she/her)

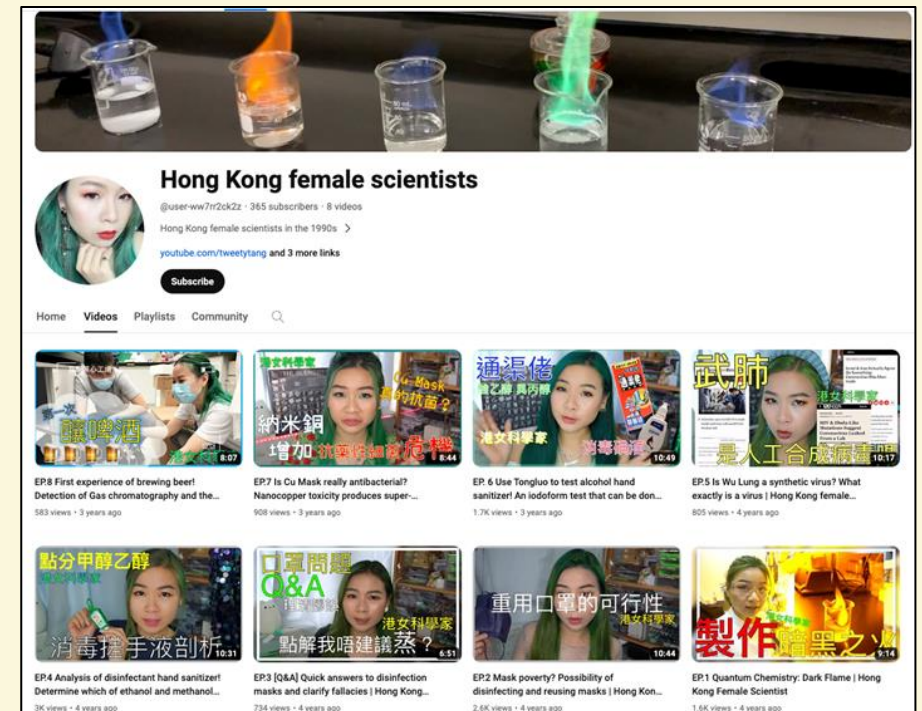
Bioengineering

Make science fashionable through influencer marketing

In the world of digital advertising, influencer marketing has become a potent weapon. It uses the social capital and authority of people who have sizable online followings to endorse goods and concepts. Influencer marketing, although frequently linked to fashion, lifestyle, and consumer products, has the unrealized potential to popularize science. Growing interest has been seen in science popularization and communication in recent years. However, newer generations who are more accustomed to digital media often find it difficult to pay attention to traditional media. This is where influencer marketing can become revolutionary.

To make scientific subjects approachable and enjoyable, picture a well-known YouTuber giving priority to enticing visuals and compelling narration when producing material. Aim to provide content that inspires, informs, and amuses audiences of all ages. This can range from educational tutorials and captivating experiments to thought-provoking conversations and immersive experiences.

Influencer marketing may effectively make science fashionable by utilizing the popularity and reach of digital personalities, promoting an environment that values innovation, curiosity, and discovery.



Alice Witt (she/her)

George Institute for Global Health

Spreading the “MESSAGE”: What is missing from research?

I work on the [MESSAGE \(Medical Science Sex and Gender Equity\)](#) project, a policy initiative to improve how biomedical, health and care researchers account for sex and gender dimensions. Spreading awareness about sex and gender data gaps is a vital part of our work, and engaging the public on this subject will have an important impact in making change for the future.

My project created a stall that would use “shock factor” to shift people’s perspectives and trigger reflection about equity in health research. We created an interactive quiz with questions about outcomes for women in health research and care and trialled it at an Imperial Lates event. Users were invited to guess the correct numerical answer and were often wrong and shocked by the correct statistic. The stall achieved the intended effect of opening people’s eyes to problematic gaps in current research practice, sparking interesting conversations and lots of food for thought.



Peng Yan (he/him)

Chemical Engineering

Membrane-4-Clean-Water: What is the magic journey of producing clean water?

Water is so important in our lives. Every day you drink clean water and use clean water to cook food and wash clothes, which then becomes dirty and ends up in the sewer. Various industries also produce a lot of wastewater.

But do you know where this dirty/wastewater goes and how it can be treated and made clean again? Membrane-based water treatment technology, developed by chemical engineers, plays the key role.

Are you curious about what the membrane is, how it is made and what is the magic journey from dirty/wastewater to clean water just by using a membrane? Join us for an interactive 1-hour workshop consisting of a 15-minute lecture and a 45-minute experimental demonstration. You can master this magic!



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