



The Open  
University

# Life, Health and Chemical Sciences (LHCS)

Newsletter

Issue 9

November 2023

## Welcome & Notices

Please take note of the following past and upcoming events worth highlighting:

- Queen's Anniversary Prize.  
The Open University's OpenSTEM labs have won this prestigious award [more here](#)
- Open to all: Online Journal Club. 6 December @7:30pm  
Sign up to present or attend – [more here](#).
- PhD Studentships:
  - Leveraging public single cell data. Closing date January 2024 – [more here](#)
  - Electron momentum spectroscopy and dissociative electron attachment studies of complex interstellar molecules. Closing date January 2024 – [more here](#)

## L1 Health Sciences Event

At the end of September, we successfully ran our Level 1 Health Sciences (HS) event across four sites: London, Cardiff, Sheffield and Glasgow. This was the first day school event that LHCS has offered at the start of a J (October start) presentation to a combined student cohort on 2 L1 HS modules, SDK100 and the new module, SK190 as part an OU-wide pilot programme. The day was well received, student feedback was positive throughout, and was supported by central and regional academics as well as a number of Associate Lecturers.



## Update from the APS Team

Widening access to, and success in, HE is a key component of the OU's 2022-2027 institutional strategy. As a result, the OU invests in and supports an Access and Participation Plan (APP) with various initiatives running across the four nations and faculties.

The LHCS Access, Participation and Success (APS) team has been busy piloting and introducing a number of measures to support APS issues across our curriculum and modules. With a newly formed team taking the matter further for the new academic year including Zoë Chapman, Caroline Hyde, Janette Wallace, Kate Fox and Heather Fraser, we look forward to keeping you up-to-date on future developments. To give an indication of some ongoing and incoming actions, it is worth mentioning the current piloting of assessment checklists on select undergraduate modules to support TMA and/or EMA submissions which we hope students will find useful. In addition, we are starting a new eSTeEM project looking into the correlation between module assessment strategy and student outcomes. We are also in the process of recruiting 2 student interns to support on a digital content creation project to improve a sense of community for students. Additional initiatives are being explored around supporting EDI and accessibility matters. We are looking forward to having conversations to explore new initiatives and ideas too, and welcome input from both students and staff.

Please get in touch if you would like further information – please email [zoe.chapman@open.ac.uk](mailto:zoe.chapman@open.ac.uk)

## Meet one of our lecturers



Six months ago, I grabbed the chance to join the OU as a lecturer in Biology in LHCS. I have joined module teams for current modules and those in production, learning new things, especially acronyms! I have met students doing lab schools where I helped teach plant biology and cell culture. My favourite experience so far has been the online summer school, where students completed remote experiments. Working on the online summer school and seeing students learn new skills such as collecting and analysing data was really rewarding.

Becoming a lecturer at the OU is also like coming full circle in my career. After leaving school without many qualifications or direction, the OU helped start me off on my journey to being a lecturer and provided the basis for my scientific career. Thanks to the OU I was able to pursue a degree in psychology, completing a Masters in Neuroscience at UCL and then a Ph.D. at King's College London in Developmental Biology. My thesis investigated how stem cells in the early chicken embryo contribute to the development of the inner ear and lens.

For the last five years, I was a research associate at Imperial College London where I worked on understanding gene networks in stem cells within the nematode worm *C. elegans*. I was driven by fundamental questions in biology, such as how cells know what to do and where to be, to why our arms are the same length. I hope to continue this work in *C. elegans* by starting a research group at the OU alongside providing my knowledge of biology to the excellent teaching that happens here and enthusing students with some of the passion I have experienced from the many people who have helped me in my academic career so far.

It has been brilliant to meet so many new people in my short time here and I am excited to meet even more going forward. If you are interested in my research, it would be great to discuss potential opportunities ([mark.hintze@open.ac.uk](mailto:mark.hintze@open.ac.uk)).

**-Mark Hintze**  
**Lecturer in Biology**

## Meet one of our tutors



13 years ago I started as a STEM AL on the postgraduate module S825, "Developing research skills in science" as my elder son started school. He's now reading chemical physics at university: the apple really doesn't fall very far from the tree. Since then, I've been involved with various modules, but all containing some chemistry; S205, S215, S112, S346, S248, S285, and soon on the new Level 2 module S218, "Concepts in chemistry".

The best part of teaching for me has always been those "lightbulb moments" when someone's penny drops. Chemistry has, I suspect, more than its fair share of those, because there are usually several different ways to approach an explanation, and sooner or later, one of them usually works. That said, I have on occasion had to post on a forum "If that doesn't work then I hope one of the other tutors will chip in here with a different explanation". Luckily, I have a great set of colleagues, both ALs and MT members, and someone always does chip in.

The AL role was great when my sons were small, because I could work flexibly around their nursery or school hours. That's less necessary now, with only 18 months of school left to go. I'm really looking forward to an October when week 1 and the (2 week Scottish) school holiday don't arrive together. I've taught while on holidays in the UK before, but I was lucky enough to get time off last year to visit the Himalayas in Bhutan which was amazing.

For me, one of the bonuses of my job has been the opportunity study OU modules via the Staff Fee Waiver. Two years ago, I completed my BA (Open), mostly in language and music. Since then, I've been strengthening my skills in areas where I now support students, including biology and statistics. I'm currently studying SD329, "The science of the senses", but looking forward to taking up environmental science in a year or two. If I'm to acquire a BSc to match the BA, I'll need to go on doing this job for a few years yet!

**Sue Armstrong**  
**Associate Lecturer**

# Spotlight on the Global Health and Development cluster



The [Global Health and Development](#) cluster is a unique multidisciplinary group of academics and researchers from different backgrounds such as biology, biotechnology, public health, medicine, neuroscience and immunology whose work is associated with international collaborators or operates within an international context. Our activities are aligned with the Sustainable Development Goals (SDGs) and bring impact at a societal level.

Initiatives carried out by the GHD cluster members have an ongoing impact to serve populations, healthcare and education worldwide, examples include:

- [OpenSTEM Africa](#): created a virtual laboratory and online materials to support the teaching and learning of experiential practical science in both the secondary and tertiary sectors in Ghana. Cluster members continue to collaborate with colleagues in Ghana in this project.
- [Open Societal Challenges](#): The Open Societal Challenges (OSC) is a Programme aimed at delivering one of the goals of The Open University's 2022-2027 Strategy 'Learn and Live'. It will use societal challenges and opportunities as a collaborative engine, bringing together teams with diverse skills to tackle challenges and giving funders confidence that The Open University (OU) is the best place to invest for societal impact

Our current work includes projects linked to the Open University's Open Societal Challenges and also to the wider global health agenda, such as:

- Tackling antimicrobial resistance through professional learning: funded by the [Fleming fund](#) and is also an Open Societal Challenges project.
- Cross-institutional British Council project to study access barriers and gender equality in STEM study at a university in Bangladesh.
- Digital health projects in Uganda.
- Practical STEM education in conflict and disaster zones.
- Chronic disease management, disability discrimination and [cyber-victimisation](#): Cross-faculty work and an [Open Societal Challenges project](#) that takes place across the [UK Nations](#) and is also funded by BA/Leverhume grant.

In addition to these projects, our members are involved in teaching several modules in the LHCS curriculum and have overseen the production of epidemiological undergraduate projects (S390) which are directly aligned to the SDGs.

If you would like to discover more about our cluster, please contact cluster coordinators:

[Rachel McMullan](#) or [Zhraa Alhaboby](#).

Rachel McMullan



Zhraa Alhaboby

# New Year with a bang! What's the cost?

## THE CHEMISTRY OF FIREWORK POLLUTION

Fireworks displays can be spectacular, but they can also have some negative effects on the environment. Here we take a look at some of the issues.

### PARTICULATE MATTER

PM<sub>10</sub>

Particulate matter 10 micrometres or less in diameter

PM<sub>2.5</sub>

Particulate matter 2.5 micrometres or less in diameter

Fireworks produce a lot of very small particles, which can remain suspended in the air for some time after the display. This significantly increases the concentration of particulate matter in the air. Inhalation of these particles can have adverse effects on the respiratory and cardiovascular systems.

### METALS



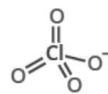
Note: Lead (Pb) and chromium (Cr) are both banned in fireworks in the US and UK, but can still be found in some imported fireworks.

COLOURS

OTHER METALS

Metal compounds give fireworks their vivid colours and can also be present in oxidiser or mixtures. These metals persist in the environment. Small particles of toxic metals such as lead, chromium and antimony show increases in atmospheric concentrations in the days after fireworks displays.

### PERCHLORATE POLLUTION



Perchlorate concentration increase after a fireworks display in Albany, New York



0.11 µg/L

↓

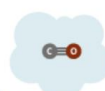
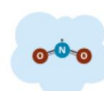
519 µg/L

PERCHLORATE ION

Source: Fate of perchlorate in a man-made reflecting pond following a fireworks display in Albany, New York, USA, Qian Wu and others, 2011, Environmental Toxicology and Chemistry 30, 11, 2448-2455.

Perchlorate compounds are used as oxidisers in some fireworks to aid the combustion reaction. These perchlorates can contaminate bodies of water near fireworks displays. Elevated concentrations of perchlorate in water can affect wildlife and it may also affect human health if it contaminates drinking water.

### POLLUTING GASES



Fireworks lead to elevated levels of well-known polluting gases in the atmosphere. These gases include nitrogen dioxide and sulfur dioxide, which can cause respiratory problems, or exacerbate existing health problems such as asthma. They can also react in the atmosphere to form particulate matter.



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## Implementation of Turnitin-for-Students

Further progress has been made with the implementation of the Turnitin-for-students initiative on most of the modules across our school as of October 2023. A pilot phase on the SDK100 B presentation had proven unproblematic and successful but with a relatively low uptake as evidenced by 40-70 submissions each for TMAs 2, 3, and 4, which equates to less than 10% of students on SDK100-23B having so far made use of the software system. The use of Turnitin remains entirely optional, but the general idea is that it will support students in correcting potential referencing issues. It can be used once per assignment.

Further information for students can be found [here](#)

Do you have something to share or would you like to get involved in the Newsletter?

We are always looking for contributions.

We'd love to hear from you – please contact: [STEM-LHCS-Teaching@open.ac.uk](mailto:STEM-LHCS-Teaching@open.ac.uk)  
Please include 'LHCS newsletter' in the e-mail subject header.

The LHCS Newsletter is brought to you by Caroline Hyde, Kate Fox, Heather Fraser, Fi Moorman, Marisa Loach, Eleanor Crabb, and Simone Pitman.

**Hello Autumn!**

What signs of the changing season have you spotted this year?



"Autumn mushrooms 5: Hare'sfoot inkcap (*Coprinopsis lagopus*)" by Peter O'Connor aka anemoneprojectors is licensed under [CC BY-SA 2.0](#).