

Life, Health and Chemical Sciences (LHCS)

Welcome and Notices

A very warm welcome to all our staff and students at the start of the new academic year! We would like to start our sixth edition with a few notices:

We are excited to let you know that we are planning a **'Welcome to the School'** event for Associate Lecturers in our School – details to follow shortly!

Student buddies - experienced students are available on many LHCS modules to support you.

Why not have a browse on the **Science Study Sites**? The [UG Science site](#) is the go-to place if you are studying BSc Biology, BSc Chemistry, BSc Health sciences as well as BSc Natural Sciences.

- You can join in your qualification-based community and activities – starting by posting a message to your [qualification forum](#)
- View [recordings](#) of Chemistry Essentials and cell biology workshops

The [PG Science site](#) is for you if you are studying our Postgraduate curriculum.

Biology week 1-9 October

During the first week of October we'll be joining in with the Royal Society of Biology's Biology Week to celebrate all things biosciences by hosting some special events for any students interested in biology:

- Following her fascinating recent talk on careers in bioinformatics, join [Dr Wendi Bacon](#) for an Introduction to [Bioinformatics interactive workshop](#). **Thursday 6th 12:00- 14:00** (booking required).

- Friday is [#ImABiologist day](#) when the RSB celebrates diversity in biology careers. Meet biologists from the Open University at our I'm a Biologist panel event, find out how they got into biology and what they love about it. Bring your questions! **Friday 7th 12:00-13:00**.

All event details are on the [biology forum](#) on the [science study site](#).



School research: [Jon Golding](#) introduces the Cancer Cluster

The Cancer Cluster is a diverse community of academics, PhD students, postdocs and technical staff from the faculties of STEM, FASS and WELS. Our research covers areas including: bioinformatics, epigenetics, cell signalling, radiotherapy, photodynamic therapy and health economics.

Some examples of our work are the £700,000 [Innovation for Cancer Care](#) in Africa, linking industrial and social innovation to improve access to cancer care in East Africa (and soon in India), led by Maureen Macintosh, Smita Srinivas and Dinar Kale. Our bioinformatics work has identified three new gene hubs as potential drug targets in [breast cancer](#) (Sushila Rigas), and novel long non-coding RNAs that drive [prostate cancer](#) (Francesco Crea).

Most recently, we have been working on the incurable childhood brain cancer, [DIPG](#), supported by the children's charity Abbie's Army (£5000), and have found thousands of RNAs that change expression as the cancer cells become resistant to radiotherapy (Jon Golding, Maryam Latarani, Francesco Crea). We hope that this new work can identify how to prevent or even reverse such cancers from becoming resistant to radiotherapy.

Our translational work identified how to improve photodynamic therapy for a type of [skin cancer in horses](#), increasing treatment responses from 14% to 93% in a clinical trial (Jon Golding). Our research also feeds back into our teaching. We have developed cancer database tools that are used in S290 and have made histology slides of various cancer tissues that are used in the [Digital Microscope](#).



Meet one of our students

I started studying with the Open University at the end of 2018, after having to leave my sixth form with only 1 A-level due to health issues. I am studying a BSc in Health Sciences, hoping to become a secondary school biology teacher in the near future.



When I first started studying with the OU, I did struggle to figure out how to study 'alone'. At first, I would study for hours on end, and I just couldn't learn anything! However, by the end of my first year, I had a system sorted. I devote 4-6hrs a day (like at school) to studying, and then I force myself to log off. This gives me structure which allows me to focus on my personal life as well as my education.

In March 2022, I saw an advertisement for a student internship to evaluate the buddy peer support system, so I applied immediately - and got it! My confidence has improved massively whilst being an intern and I would strongly recommend students to apply for internships. The skills you develop and the whole experience are so beneficial in terms of employability and personal growth!

This year, I'll be studying S350 and SXH390 (the project module!) and I'm extremely excited. This means that it'll be my last year studying with the OU but, to be honest, I wouldn't mind coming back to study as a postgrad student!

-Saskia Davitt (current student)

Meet one of our tutors

I started working for the OU in 2012, shortly after retiring from full-time work. I had worked in research as a solid-state (crystal) chemist for a number of industrial and academic institutions, including UCL and TU Delft, with contacts across the UK, Germany and the Netherlands. My first OU module was the Science Project Module SXM390, and I joined the team on the Level 3 module 'Chemistry – Further Concepts and Applications' at its inception in 2015. It is an excellent team and I am proud to be a member of it.

My other abiding passion is music: I play the lute and related historic plucked-string instruments. I accompany singers and instrumental soloists, and do quite a lot of performing. My main interest is in historically-informed performance of music of the Renaissance (c. 1490 – 1625) and Baroque (c. 1600 – 1750) periods; I am intensely interested in European cultural history over these periods, which provides the contexts in which the music was played.

I am a Trustee of the charity Cambridge Early Music, which runs Summer Schools and concerts and promotes Early Music in the Cambridge area.



-Peter Cains

(Chemistry Associate Lecturer / tutor)

Spotlight on the Student Support Team (SST)

The STEM (and Access) SST is made up of three sub-teams all working together to support students through Social Media, Forums, phone, Email and Webchat.

Advisers provide Information about studying within the STEM faculty; Senior Advisers provide in-depth advice to help students make fully-informed decisions; and Educational Advisers provide guidance to help students overcome barriers to study. We would like to introduce SST managers Liz and James:

Liz Shakespeare leads the Educational Advisers in the Science and Computing & IT Student Support Teams. *'I've worked for the Open University for 10 years. I enjoy furthering my academic development and have completed several qualifications, currently working my way through a BSc in Psychology and Counselling. I'm looking forward to helping more students succeed this year and want to remind everyone that we're here to help at every stage of your journey.'*



James Jepson leads a team of Senior Advisers for the Science Schools. *'My previous academic and work experience has been mainly in the arts, but I'm now in my 6th year in STEM. One of my favourite parts of my role is working collaboratively with teams across the university to improve the Student Support journey – this includes acting on the valuable feedback I receive from students and academics. I'm looking forward to supporting students through the new academic year and recommend that anyone thinking of making changes to their study plans, contacts us as early as possible to discuss their options.'*

S285: Investigative approaches in biology and chemistry

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Investigative approaches in
biology and chemistry

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Ever wondered what goes into producing a new module? As chair of one of LHCS' newest modules, S285, here's [Rachel McMullan's](#) quick 'behind the scenes' look at how the module was produced. S285 was presented for the first time in 2021 but work started on its production in the autumn of 2019. We held many planning meetings to work out the learning outcomes, knowledge and skills that we wanted to teach and develop, and to ensure the module would fit within the biology and chemistry qualifications. We wanted S285 to be as authentic and accessible as possible, and we had lots of workshops to design the practical activities including the online laboratories and remote experiments. Once we'd agreed a detailed plan it was time to start producing the module! This began with a series of drafts of the module content which were produced by 8 academic authors and reviewed by critical readers. The production team produced artwork, video resources and online tools based on the author's drafts. Module production really is a collaborative process: the S285 Module Team was made up of 43 people including academic authors, editors, artists, digital media developers, critical readers, associate lecturers, curriculum managers, learning designers and external advisors, all of whom brought specialist skills and expertise to produce the interactive content that you see when you log on to the module website. Next time you log on to your module website, you'll know a little bit more about what went in to making it!

Skills for Biologists - a summer programme of workshops

During June and July, we ran a series of workshops for our biology and health students on 'Skills for Biologists', co-ordinated by LHCS Employability Lead, [Janet Haresnape](#) and Associate Lecturer, Ruth Gilbert. The facilitators shared first-hand experiences of working in biology-related jobs, including working in a research laboratory, undertaking field work in exotic places, and working in bioinformatics. A total of 149 students either attended or accessed the recording of at least one of the workshops, with those on HIV, Foodborne diseases, Communication skills, Surviving life as a field biologist, and Bioinformatics being particularly popular. Comments from participants highlighted how useful the sessions were in showing what professional biologists work on and how learning is applied to real world situations. We hope to run this programme again next summer, including other discipline areas. We would like to thank all those who contributed to the success of the programme – Wendi Bacon, Jane Beal, Ruth Brown, Penny James, Roseanne Miller, Scott Tytheridge, Kevin Warwick and Lynda Weir. Why not view the [recordings](#)?

Do you have something to share?

We would also be very interested in hearing from anyone who might like to join our editorial team!

Just e-mail STEM-LHCS-Teaching@open.ac.uk including 'newsletter' in the e-mail subject header.

The LHCS Newsletter, brought to you by Fi Moorman, Karen New, Eleanor Crabb and Simone Pitman.

Enlarge your view to learn more about [The Chemistry of Autumn Leaf Colours Compound Interest \(compoundchem.com\)](#)

THE CHEMISTRY OF AUTUMN LEAF COLOURS

CHLOROPHYLL
A type of chlorophyll
Chlorophyll gives plants their green colour. Plants require warm temperatures and sunlight to produce chlorophyll; in autumn, the amount produced begins to decrease, and existing chlorophyll is slowly broken down, releasing the green colour of the leaves.

CAROTENOIDS & FLAVONOIDS
A type of carotenoid
Carotenoids and flavonoid pigments are always present in leaves, but as chlorophyll is broken down in the autumn their colours come to the fore. Xanthophylls, a subclass of carotenoids, are responsible for the vibrant autumn leaves. One of the major xanthophylls is lutein, a yellow compound that contributes towards the yellow colour of egg yolks.

CAROTENOIDS
A type of carotenoid
Carotenoids also contribute orange colours. Beta-carotene is one of the most common carotenoids in plants, and absorbs green and blue light strongly, reflecting red and yellow light and causing its bright appearance. It is also responsible for the orange colouration of carrots. Carotenoids in leaves start disappearing at the same time as chlorophyll, but they do so at a much slower rate and some fall leaves can still contain measurable amounts.

ANTHOCYANINS & CAROTENOIDS
ANTHOCYANINS
A type of carotenoid
Anthocyanin synthesis is kick-started by the onset of autumn. As sugar concentration in the leaves increases, sunlight initiates anthocyanin production. The process then sets off a chain reaction that may have a high protective role. It was previously thought they might delay leaf fall, but this has been discounted.

FLAVONOIDS
(General structure)
FLAVONOIDS
(General structure)
VIOXANTHIN
(Type of carotenoid)
LYCOPENE
(Type of carotenoid)