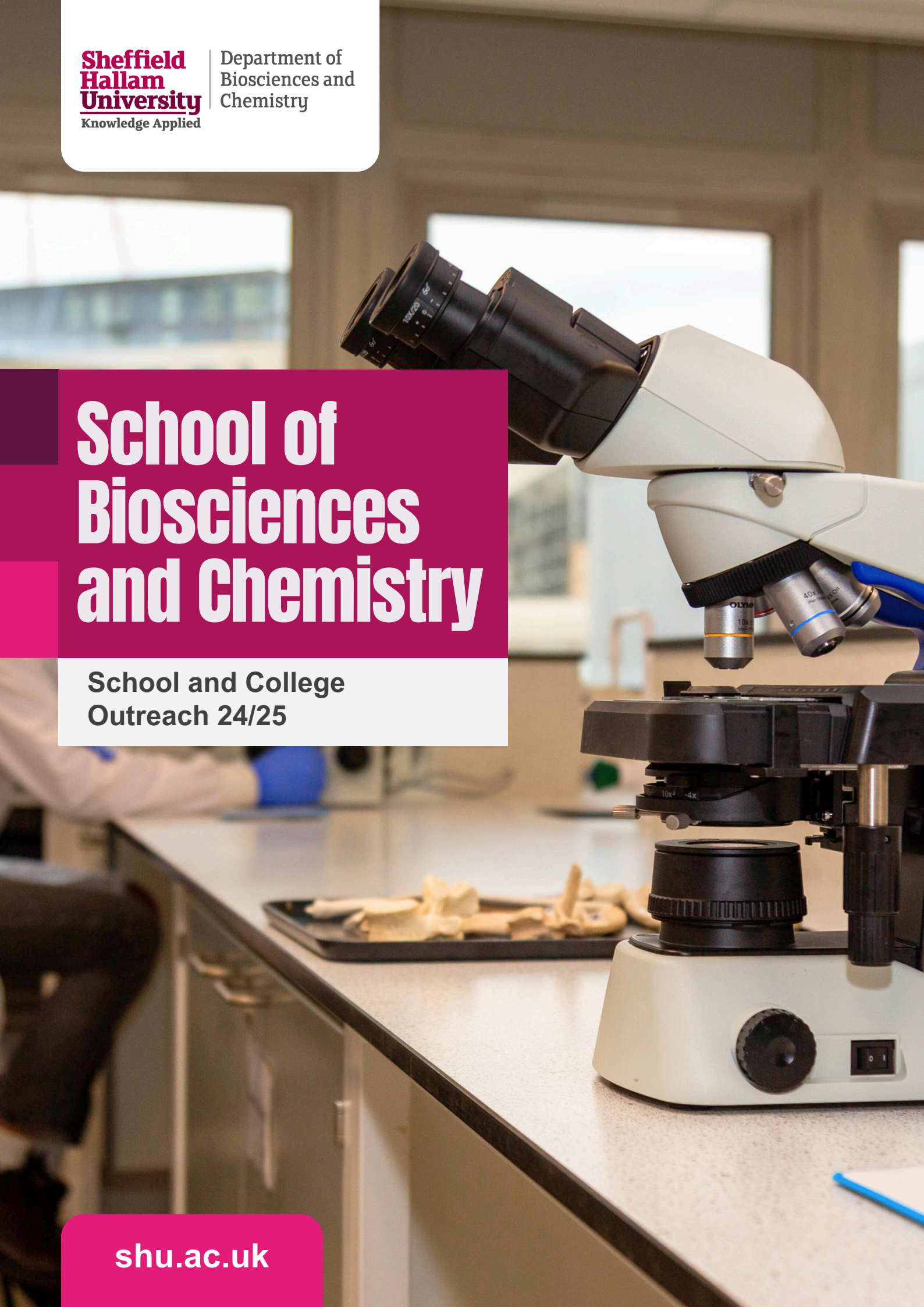


School of Biosciences and Chemistry

School and College
Outreach 24/25





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Department of Biosciences & Chemistry

Our department consists of a community of undergraduate, postgraduate and PhD students and staff who work together to deliver academically challenging, vocationally-focused courses in Biomedical, Biological and Chemical Sciences.

Our courses are delivered in a supportive research informed environment and prepare students for a range of careers in the life sciences and chemistry sectors by developing students' understanding of the latest techniques and knowledge, so that upon graduation they can contribute to the wealth and health of the nation.

Our teaching of scientific theory and its application is underpinned by practical classes in our extensive laboratories. The programmes we deliver also emphasise the development of personal and professional skills required for graduate level employment.

Our staff are research active and passionate about passing on their love of science to both students and the general public. We consistently perform highly in student satisfaction, reflecting the dedication and commitment of our staff in providing high quality courses in a supportive learning environment.

We look forward to working with you.



Our Outreach Offer

The Department of Biosciences & Chemistry offers a range of talks and lab workshops designed to support your KS5 students to make informed decisions about their next steps. For KS3 and KS4 students, please get in touch to see what opportunities are available.

Talks

Time: 30-60 minutes

Capacity: Unlimited, dependent on space

Location: On campus, or in school/college

In addition to talks covering individual undergraduate courses (see below), the department also offers an interactive session exploring the range of science courses available at university, and how students might choose the right one for them.

- How to choose a science course
- Biochemistry
- Biology
- Biomedical Science
- Biomedicine & Health Science
- Chemistry

Lab Workshops

Time: Half or full day, during set weeks throughout the academic year

Capacity: See below

Location: On campus

All of our workshops are delivered in industry-standard teaching labs by academic and technical staff, and have been developed to support the delivery of **Level 3 Biology, Chemistry and Applied Science** curricula.

Workshops are typically delivered in the morning and last 2.5 hours. They can be supplemented by a range of activities in the afternoon to create a full on-campus taster day (please see below for an example).

To enquire about a talk, please contact Jack Ridleigh j.ridleigh@shu.ac.uk



To book a lab workshop, please scan the QR code and complete the form

2024/25 dates and example timetable

Lab workshops are offered during set weeks throughout the academic year, in order to ensure the availability of University staff and teaching labs. Below are the dates for 2024/25 and an example of a full-day timetable, though groups are welcome to leave after their morning lab workshop if preferred.

September 2024

- Wednesday 11th September
- Thursday 12th September
- Friday 13th September

March 2025

- Monday 17th March
- Tuesday 18th March
- Wednesday 19th March

January 2025

- Thursday 9th January
- Friday 10th January
- Monday 13th January
- Tuesday 14th January
- Wednesday 15th January
- Thursday 16th January
- Friday 17th January

May 2025

- Monday 12th May
- Tuesday 13th May
- Wednesday 14th May
- Thursday 15th May
- Friday 16th May

Timings	Session
9:15 - 9:30	Arrival and welcome
09:30 - 12:15	Lab workshop
12:15 - 13:00	Lunch
13:00 - 13:45	Taster lecture
13:45 - 14:30	Campus tour and/or student life Q&A
14:30	Departure



Molecular Biology (Transplant Match) Biosciences

Duration: 2.5 hours

Capacity: 50

Age group: KS5

A hands-on scenario-based session where students will learn about PCR and gel electrophoresis.

Students will get to carry out both of these techniques in one of our science laboratories, learning about the underpinning theory and application to real-life science.

Students gain practical experience in:

- Accurate use of pipettes.
- Conducting Polymerase Chain Reaction (PCR).
- Creation of buffers and visualisation of DNA migration through gel.
- Visualisation of DNA separation using Thermocycler.



**To book this lab workshop,
please scan the QR code
and complete the form**



Synthesis of Aspirin Chemistry

Duration: 2.5 hours

Capacity: 50

Age group: KS5

Students synthesise the anti-inflammatory drug aspirin (acetylsalicylic acid) from salicylic acid (isolated from willow bark) using an acid-catalysed substitution reaction. The product is characterised using a range of modern analytical and spectroscopic methods.

Students gain practical experience in:

- Weighing solids using a top pan balance.
- Using a magnetic stirrer hotplate.
- Büchner vacuum filtration.
- Purification of the product by recrystallisation from hot solvent.
- Assessing the identity and purity of the product using 4 analytical methods: Melting Point, Thin-Layer Chromatography (TLC), Fourier Transform Infra-Red (FTIR) spectroscopy and Nuclear Magnetic Resonance (NMR) spectroscopy.



**To book this lab workshop,
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Synthesis of Cyclohexene Chemistry

Duration: 2.5 hours

Capacity: 50

Age group: KS5

Students synthesise cyclohexene by acid-catalysed elimination of water from cyclohexanol. The product is then distilled out of the reaction mixture for further analysis. The product is characterised using a classical chemical test and a range of modern analytical and spectroscopic methods.

Students gain practical experience in:

- Using a magnetic stirrer hotplate.
- Setting up a reaction using distillation apparatus, so that the product is distilled out from the reaction mixture.
- Performing liquid-liquid extraction using a separating funnel.
- Drying organic solvents with desiccants.
- Gravity or Büchner vacuum filtration as required.
- Use of a rotary evaporator to remove organic solvents.
- Performing a bromine water test for the presence of an alkene.
- Assessing the identity and purity of the product using 3 analytical methods: Thin-Layer Chromatography (TLC), Fourier Transform Infra-Red (FTIR) spectroscopy and Nuclear Magnetic Resonance (NMR) spectroscopy.



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Synthesis of Aroma Esters Chemistry

Duration: 2.5 hours

Capacity: 50

Age group: KS5

Students synthesise esters commonly found in fruit aromas and regularly manufactured as such for use in flavourings and fragrances. A range of esters are provided, meaning students can compare data for different compounds.

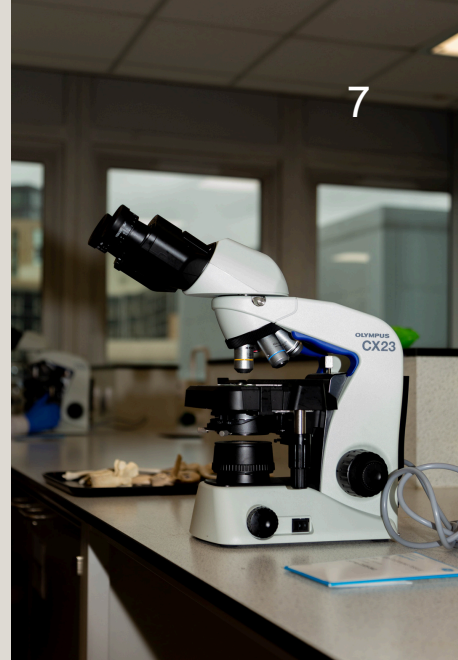
The reaction is an acid-catalysed substitution reaction (Fischer esterification) between an alcohol and a carboxylic acid. The product is characterised using a range of modern analytical and spectroscopic methods.

Students gain practical experience in:

- Using a magnetic stirrer hotplate.
- Setting up and running a reaction under reflux.
- Performing liquid-liquid extraction using a separating funnel.
- Drying organic solvents with desiccants.
- Gravity or Büchner vacuum filtration as required.
- Use of a rotary evaporator to remove organic solvents.
- Purification of the product by atmospheric distillation.
- Assessing the identity and purity of the product using 3 analytical methods: Thin-Layer Chromatography (TLC), Fourier Transform Infra-Red (FTIR) spectroscopy and Nuclear Magnetic Resonance (NMR) spectroscopy.



**To book this lab workshop,
please scan the QR code
and complete the form**



SHU OUTREACH OFFER

Sheffield Hallam University offer talks and workshops to support students to make an informed decision regarding higher education. Below is an overview of what schools and colleges can access, these can be stand alone sessions or incorporated into a subject taster day.

TALKS

Our talks, tailored for Y12, Y13, and mature students, can be delivered either in classrooms or assembly sessions.

SHOULD I GO TO UNIVERSITY?

SHOULD I GO TO UNIVERSITY AS A MATURE LEARNER?

HOW DO I APPLY FOR UNIVERSITY?

CAN I AFFORD TO GO TO UNIVERSITY?

WHAT IS A DEGREE APPRENTICESHIP?

WHAT IS IT LIKE BEING A STUDENT AT SHEFFIELD HALLAM UNIVERSITY?

WORKSHOPS

Designed for Y12 and Y13 students. Suitable for classroom delivery with a maximum of 30 students. Access to table-top desk space is required.

WHICH COURSE SHOULD I DO?

FEELING OVERWHELMED BY YOUR STUDIES?

WHAT MAKES A GOOD PERSONAL STATEMENT?

HOW DO I BUDGET AT UNIVERSITY?

HOW DO I APPLY FOR A DEGREE APPRENTICESHIP?

AM I UNIVERSITY READY?

Access Support at Hallam



SHU Progress

SHU Progress provides support for applicants whose personal circumstances might mean that there are barriers to going to university.

The scheme provides additional support in the year of application and throughout the application process, including the transition to becoming a university student.

How to join

In order to join the scheme, students must be nominated by a professional (such as a teacher, social worker, support worker, etc.) who knows the applicant and their background. You can find the nomination form, as well as further details on eligible groups and the support on offer, by scanning the QR code. Alternatively, visit shu.ac.uk/shuprogress

If you have any questions, you can email the team at:

SHU-Progress@shu.ac.uk

or call **0114 225 4777**



Black British Applicant Support

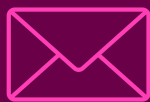
As a university we recognise the additional barriers that many prospective students face when pursuing higher education. As part of the response to this, our Access team also provide additional support for black British applicants, with tailored support throughout the application and transition process.

For more information, you can email the team at **Access@shu.ac.uk**

**Sheffield
Hallam
University**
Knowledge Applied

Jack Ridleigh

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shuoutreach.com

**Department
of Biosciences
& Chemistry**

