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Getting started

Audio check

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Please type yes or no in the “Text chat area”
Getting started

Asking questions

Always use the hand raise icon to queue up your question.

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Getting started

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The City of Edinburgh

Population around 500,000 - students make up over one tenth

Historic, cosmopolitan, safe, cultured city

Favourite UK city Guardian/Observer Travel Awards for 13 consecutive years – 2nd in 2013, 3rd in 2014

One of the most vibrant cities in Europe and most desirable places to live in the world

World’s first UNESCO City of Literature

UNESCO World Heritage Site

12 annual festivals, including the world’s largest arts festival

Financial centre

Excellent transport networks
The University *Historic & Prestigious*

Founded in 1583

Ranked 18th by *QS* World University Rankings 2019

Ranked 29th in the Times Higher Education World University Rankings 2019

Ranked 4th in the UK Research Excellence Framework 2014 by power ranking.

41% of students from outside the UK

Associated with 18 Nobel Prize winners - in areas such as Physics, Medicine, Economics

Peter Higgs, Nobel laureate in Physics (2013)

*The University of Edinburgh: rated as the best place to be in the UK by international students*

ISB Summer
Distinguished Alumni

Charles Darwin, Naturalist
David Hume, Philosopher
Joseph Lister, Surgeon
Piers Sellers, NASA Astronaut
Gordon Brown, previous UK Prime Minister
Adam Smith, Economist
James Clerk Maxwell, Physicist
Peter Higgs, Physicist
Sir Walter Scott, Writer
Robert Louis Stevenson, Writer
JK Rowling, Writer
John Witherspoon, signatory of US Declaration of Independence
Sir Christopher Hoy, three gold medals at Beijing Olympics
Study in Scotland

Education has been compulsory since 1496

Every year, more than 30,000 international students from over 180 countries choose to study in Scotland

15 universities

Per head of population...
- more world top 100 Universities (QS, Times)
- more academic papers and citations
  ...than any other country in the world

The education systems in the USA, Canada and China mirror the model pioneered by the Scots

Vibrant cosmopolitan cities with historical & cultural tradition
Academic Structure

3 Colleges:
- College of Medicine & Veterinary Medicine
- College of Humanities & Social Science
- College of Science & Engineering

22 Schools:
All research-active

119 academic disciplines
600+ Undergraduate degrees
160+ Postgraduate taught courses
130+ Research degrees
College of Science & Engineering

Schools:
Biological Sciences
Chemistry
Engineering
Geosciences
Informatics
Mathematics
Physics & Astronomy
Chemistry is the key enabling science

Chemical Physics

New Materials

Nanotechnology

Energy

Environment

Med. & Biol. Chemistry

Healthcare

Chemistry
Chemistry

- Founded in 1713
- Oldest Chemical Society in the World - 1785

Joseph Black (1755)
  - discovered CO$_2$

Alexander Crum Brown (1869)
  - pioneer of molecular models
2014 UK Research Assessment Exercise:
Ranked **2nd in the UK ”power ranking”**

International reputation and PG population
– *Die Zeit* labelled Edinburgh Chemistry as 'excellent' for postgraduate training at European universities.
Synthesis and Catalysis

Simple, effective, and clean routes to preparing molecules and materials.

Topics
• Sustainable synthesis and catalysis
• Biomimetic natural product synthesis
• New molecular magnetic materials
• New main-group and organometallics
• Applications of high pressure in synthesis

List of names
• Prof Euan Brechin
• Dr Scott Cockroft
• Dr Michael Cowley
• Prof. Dominic Campopiano
• Dr Jennifer A Garden
• Dr Alison Hulme
• Dr Andrew Lawrence
• Prof Guy Lloyd-Jones
• Prof. Jason Love
• Dr Paul Lusby
• Prof. Neil McKeown
• Dr Uwe Schneider
• Dr Stephen Thomas
Chemical Dynamics

Through Chemical Dynamics we seek to understand how atoms and molecules move, contort, interchange, react, and how they interact with external forces (magnetic and electric) over time.

Dynamics signifies movement or change. We measure chemical changes from ultrafast (femtoseconds) to very slow (years). Through experiments and simulations, we develop a base understanding of chemistry, and we learn how to manage and direct chemical processes. In this way we are able, e.g., to build new optical materials, to develop more potent pharmaceuticals, and much more: our areas of interest are listed below.

Researchers
• Dr Andrew Alexander – theme leader
• Professor Philip Camp
• Professor Eleanor Campbell FRS
• Dr Mathew Heal
• Dr Olof Johansson
• Professor Anita Jones
• Dr Pat Langridge-Smith
• Professor Guy Lloyd-Jones FRS
• Dr Julien Michel
• Dr Chris Mowat

Topics
• Theoretical Methods and Algorithms
• Spectroscopy and Scattering
• Atoms, Molecules and Clusters
• Liquids, Glasses and Crystals
• Surfaces, Interfaces and Materials
• Polymers and Soft Matter
• Biological Molecules and Networks
Energy Research

The essential goal of sustainable, affordable and secure energy supplies for everyone is a defining challenge of this century.

Topics
- New materials for solar photovoltaics
- Phase-change materials for heat storage
- Separation of gases and utilisation of CO₂
- Greener nuclear fuel reprocessing
- New materials for efficient H₂ production
- Electrodes for supercapacitors

Researchers
- Professor Eleanor E. B. Campbell FRS
- Dr Jennifer A Garden
- Dr Dimitrios Kampouris
- Dr Adam Kirrander
- Professor Jason Love
- Professor Neil B McKeown FRSE
- Dr Carole A Morrison
- Professor Andy Mount
- Professor Colin R Pulham
- Professor Neil Robertson – Theme Leader
Environmental and Sustainable Chemistry

- **RESOURCES:** research into sustainable methods to recover resources.
- **PRODUCTS:** development of novel processes to produce new sustainable materials with wide ranging properties.
- **PROCESSES:** study of the behaviour and fate of natural and pollutant chemical species in the environment.

**Theme Members:**
- Dr Nichole Bell
- Professor Dom Campopiano
- Dr Michael Cowley
- Dr Jenni Garden
- Dr Mathew Heal
- Dr Caroline Kirk
- Professor Jason Love
- Dr Carole Morrison
- Professor Colin Pulham
- Dr Stephen Thomas
- Professor Dusan Uhrin
Functional Materials

The synthesis and characterisation of new materials to address global challenges.

Topics
- Bio-Organisms and Molecular Machines
- Crystalline Molecular and Network Solids
- Electronic and Magnetic Materials
- Polymers & Amorphous Materials
- Simulation and Theory

Researchers
- Professor Paul Attfield FRS
- Professor Euan Brechin FRSE
- Professor Philip Camp
- Professor Eleanor E. B. Campbell FRS
- Dr. Scott Cockroft
- Dr. Simon Daff
- Dr Jennifer A Garden
- Dr. Olaf Johanson
- Dr Dimitrios Kampouris
- Professor Neil Robertson
- Professor Neil B McKeown FRSE
- Dr Carole A Morrison
- Dr. Fabio Nudelman
- Professor Simon Parsons
- Professor Colin R Pulham
Chemical Medicine

- Biophysical Characterisation
- Synthesis, Materials Biocatalysis
- Computation Modelling

Understanding disease

Treating disease

Diagnosing disease

- Treating disease
- Nudelman
- Lilienkampf
- Campopiano
- Michel
- Cockroft
- Hulme
- Bradley
Structural Chemistry

At the forefront of technique development, fundamental science and their application to elucidate complex structural chemistry problems.

Computational Chemistry
Prof Philip Camp,
Dr Adam Kirrander,
Dr Julien Michel
Dr Carole Morrison – theme leader,

Diffraction and Crystal Growth
Prof Simon Parsons,
Prof Paul Attfield,
Prof Neil McKeown
Dr Chris Mowat,
Prof Colin Pulham,
Dr Fabio Nudelman
Prof Paul Barlow,
Dr Andy Alexander
Prof Euan Brechini

Mass Spectrometry
Dr David Clarke,
Prof Dusan Uhrin,
Dr Nicholle Bell

Prof Dusan Uhrin,
Prof Guy Lloyd-Jones,
Prof Paul Barlow
Prof Anita Jones,
Dr Olof Johansson,
Dr Nicholle Bell

Applications
Just about everybody
Non-equilibrium Systems

The non-equilibrium flux of matter, information and energy is a defining characteristic of life. Research in this theme seeks to understand and exploit non-equilibrium processes using man-made molecular systems, often taking inspiration from both macroscopic mechanical devices and biology. Progress in this area was highlighted by the award of the 2016 Nobel prize for Chemistry for the development of molecular machines.

Molecular Machines & Mechanochemistry

Biological Energy Transduction

Chemical & Catalytic Energy Transduction

• Professor Euan K Brechin FRSE
• Dr Scott L. Cockroft (theme leader)
• Dr Paul Lusby
• Professor Neil B McKeown FRSE

• Dr Colin Campbell
• Dr David J. Clarke
• Professor Anita C. Jones

• Professor Simon Parsons
• Professor Colin R Pulham
• Professor Neil Robertson
Chemistry

The School of Chemistry is equipped with state-of-the-art research facilities:

- NMR (400, 500, 600 and 800 MHz spectrometers)
- X-ray crystallography (3 CCD diffractometers)
- Mass spectrometry
- EPR spectroscopy
- Inductively coupled plasma emission spectrometers
- Squid magnetometers
- High pressure facilities
Multi-disciplinary centres at UoE

Chemistry – Physics – Geosciences – Biology – Medicine – Informatics

Centre for Science under Extreme Conditions

COSMIC working with light

CtCb

centre for translational and chemical biology

epcc

unparalleled computing

UNIVERSITY OF EDINBURGH

Chemistry
International culture – social events, English language support, buddy system, ChemSoc
How to apply: visit www.chem.ed.ac.uk for information