

# A-level Chemistry

## A-level Chemistry factsheet

### Overview

Sometimes referred to as the “central science”, Chemistry helps to connect physical sciences, like Maths and Physics, with applied sciences, such as Biology, Medicine and Engineering. You will challenge ideas and develop logical thinking processes and reasoning skills.

### Key Facts

Start Dates:

- 5 April 2021 (Brighton only)
- 6 September 2021
- 3 January 2022

Colleges:

- Bournemouth
- Brighton
- London
- Oxford

Entry level:

- Academic: Completed 10 years of schooling (GCSE or equivalent)
- English: IELTS 5.5 or equivalent

Minimum age:

- 16

Length:

- 2 Academic Years (3 terms)
- We also offer a One-Year A-level in Chemistry and an entry from Year 12.

Lessons:

- Average 7 hours per week for each A-level subject (plus homework and private study)

Class size:

- 4-10

## Learning outcomes

- Gain UK national university entrance qualification
- Raise English to university level
- Develop study skills required at degree level
- Develop specialist subject expertise

## Course content and structure

The following syllabus outline is based on AQA exam board content. Please note that exam boards may vary from college to college.

### Year 1

Physical Chemistry

- Atomic structure
- Amount of substance
- Bonding
- Energetics
- Kinetics
- Chemical equilibria and Le Chatelier's principle
- Oxidation, reduction and redox equations

Inorganic Chemistry

- Periodicity
- Group 2, the alkaline earth metals
- Group 7 (17), the halogens

Organic Chemistry

- Introduction to organic chemistry
- Alkanes
- Halogenoalkanes
- Alkenes
- Alcohols
- Organic analysis

### Year 2

Physical Chemistry

- Thermodynamics
- Rate equations

- Equilibrium constant  $K_p$  for homogeneous systems
- Electrode potential and electrochemical cells
- Acids and bases

### Inorganic Chemistry

- Properties of Period 3 elements and their oxides
- Transition metals
- Reactions of ions in aqueous solution

### Organic Chemistry

- Optical isomerism
- Aldehydes and ketones
- Carboxylic acids and derivatives
- Aromatic chemistry
- Amines
- Polymers
- Amino acids, proteins and DNA
- Organic synthesis
- Nuclear magnetic resonance
- Spectroscopy
- Chromatography

## Typical A-level subject combinations with Chemistry

- Chemistry, Maths and Biology
- Chemistry, Maths and Physics
- Chemistry, Maths and Economics

## Sample enrichment activities

- The Big Bang fair, NEC Birmingham
- Natural History Museum visit
- Oxford University Science laboratory visit
- Oxford University School of Medicine visit
- University of Birmingham STEM open day
  
- The Royal Society, London
- Science Club
- Science in the News Club
- Google Science Fair
- Spectroscopy in a Suitcase

## Sample academic calendar (2021-2022)

### Year 1

#### September

- 6th: term starts
- Student induction

#### October

- 18 – 22nd: half term
- Progress tests

#### November

- University fairs and talks

#### December

- 10th: term ends
- End of term exams

#### January

- 3rd: term starts

#### February

- 10th – 11th: half term
- Progress tests
- University fairs

#### March

- End of term exams
- 18th: term ends

#### April

- 4th: term starts

#### May

- Progress tests

#### June

- Exams

- 10th: term ends

## Year 2

### September

- 5th Sept: term starts

### October

- 17th – 21st: half term
- 15th October: UCAS deadline (Medicine)
- Progress tests

### November

- University fairs and talks

### December

- 9th: term ends
- End of term exams

### January

- 2nd: term starts
- 15th January: UCAS deadline (other subjects)

### February

- 9 – 10th: half term
- Progress tests

### March

- 17th: term ends
- Mock exams

### April

- 3rd: term starts
- Progress tests

### May

- Final exams

### June

- 9th June: term ends

## Recommended reading

Below is a list of books which may help you prepare for your studies prior to arrival. Please note that additional books, and online resources such as websites and journals will be shared once you begin your course.

- AQA Chemistry A Level Student Book by Ted Lister, Janet Renshaw
- The Pleasure of Finding Things Out by Richard Feynman
- Periodic Tales by Hugh Aldersey-Williams
- The Disappearing Spoon by Sam Kean
- Uncle Tungsten by Oliver Sachs
- The Shocking History of Phosphorus: A Biography of the Devil's Element by John Emsley

## Degree progression

A-level Chemistry, often in conjunction with other science-based subjects, can lead to the following types of degree course.

- Biomedical Sciences
- Biochemistry
- Chemical Engineering
- Dentistry
- Dietetics
- Earth Sciences
- Engineering
- Environmental science
  
- Geology
- Medical Science
- Medicine
- Optometry
- Pharmacy
- Physiotherapy
- Sports Science
- Veterinary Science

## Sample alumni progression

Aysha Ahmad Sharudin

- Chemistry/Biology/Maths/Persian
- University of Exeter (Neuroscience)

Chun Yu Chan

- Chemistry/Biology/Maths/Physics
- Queen's University Belfast (Medicine)

Hon Ming Lam

- Chemistry/Biology/Maths
- University of Bristol (Pathology)

Maryam Aghaeinasababad

- Chemistry/Biology/Maths
- Royal Veterinary College (Veterinary Medicine)

Negin Nematiniaye Masooleh

- Chemistry/Biology/Maths/Persian
- University of Leeds (Medical Science)

Zeyu Song

- Chemistry/Maths/Physics
- UCL (Civil Engineering)

Zhishung Lin

- Chemistry/Maths/Physics
- University of Birmingham (Chemistry)

Yangcheng Xu

- Chemistry/Maths/Further Maths/Physics
- Imperial College London (Mechanical Engineering)