

# Chemistry

## What will I study and learn?

**The two-year course provides a solid foundation in the three main branches of chemistry:**

### Physical chemistry

Atomic structure; amount of substance; bonding; energetics; kinetics; chemical equilibria and Le Chatelier's principle; oxidation, reduction and redox equations; thermodynamics; rate equations; equilibrium constant  $K_p$  for homogeneous systems; electrode potentials and electrochemical cells; and acids and bases.

### Inorganic chemistry

Periodicity; Group 2 – the alkaline earth metals; Group 7 (17) – the halogens; properties of Period 3 elements and their oxides; transition metals; reactions of ions in aqueous solution.

### Organic chemistry

Introduction to organic chemistry; alkanes; halogenoalkanes; alkenes; alcohols; organic analysis; optical isomerism; aldehydes and ketones; carboxylic acids and their derivatives; aromatic chemistry; amines; polymers; amino acids, proteins and DNA; organic synthesis; and nuclear magnetic resonance spectroscopy.

## What skills should I have and what will be developed?

The course has been designed to stimulate interest and enjoyment of the study of chemistry, and to enable students to acquire a basis for further study and employment.

Through practical work you will develop your ability to collect, present and interpret data. The course thus promotes an appreciation of the way chemistry may be used to solve problems and how it should be used responsibly.

Chemistry is concerned with the science of matter and helps us to relate its structure and bonding to its physical properties and reactions. It is often called the central science as chemical principles underpin both the physical environment and all biological systems.

The Department will offer you the chance to stretch yourself by entering the Lower Sixth Cambridge Chemistry Challenge and the RSC Chemistry Olympiad. Our proximity to The School of Chemistry at the University of Bristol gives access to a range of visiting speakers and events.

## Future opportunities

Chemistry is involved in every manufacturing industry and forms a basis for medicine, agriculture and environmental work. Chemistry is an essential entry requirement for undergraduate studies in Dentistry, Medicine and Veterinary Science. It is also necessary for further studies in areas such as Biochemistry, Pharmacy, Forensic Science, Food Technologies, Environmental Science and Nanotechnology.

Russell Group universities classify Chemistry as a facilitating subject in recognition that the study of it leads to such a wide range of options at university.

“Chemistry has expanded my current knowledge which is built upon through the practicals we carry out. The department have fabulous resources and the teachers are approachable and always happy to help.

**Hope, OB**

Courses: Mathematics, Biology and Chemistry



## Want to know more?

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Exam Board:  
[aqa.org.uk](http://aqa.org.uk)



### How will I be assessed?

You will sit three two-hour written papers covering all the main topics as well as practical techniques and data analysis.

An endorsement of practical skills will be taken alongside the A level. This will be based on direct observation of your competencies in a range of skills.

### ENTRY REQUIREMENTS

You should achieve a grade 7 or above in GCSE Chemistry, or a grade 7,7 in Combined Science, to study the A-level course. A grade 7 in Mathematics is also recommended, with a minimum of grade 6.