

# A level Chemistry

## Why study Chemistry?

- Chemistry is central to a wide range of subjects including Biology, Physics, Environmental Science and Geology.
- Whether you want to go to university or directly into employment or further training, Chemistry provides you with the opportunity to progress through many routes to help you reach your goal.
- Chemistry develops your analytical and logical reasoning skills; these are invaluable in careers in chemistry, but also in non-Chemistry related subjects.
- You have a passion for it and enjoy a challenge!

## Why study Chemistry at Solihull Sixth Form College?

- The department has links with universities, as well as The Royal Society of Chemistry.
- We host talks from visiting speakers and learners attend Masterclasses at universities. There is an opportunity for students to join our new STEM enrichment programme and work towards a CREST award.
- We use teaching styles appropriate to the topic being delivered. We have online learning activities to help you practise and improve your skills. Chemistry is a practical science, we complete and discuss experiments to develop your understanding of the application of subject content.



## Case Study

Among the recent successful learners to have taken this course is **Amrit Rooprai**.

She came to the College from overseas and achieved all A\* grades in A level Biology, Chemistry and Mathematics. She has progressed to the University of Oxford to study Medicine.



*"I applied to Oxford because I want to pursue a career in medical research as well as being a clinician. After the open day, I felt that the tutors at Oxford understood my goal better than others I had spoken to. The application was quite stressful because of the admissions tests, early application and interview preparation, but my subject teachers and academic coach gave me lots of support."*

*- student Amrit Rooprai*



## Course Outline

A level Chemistry involves studying the composition, structure, and properties of substances and the transformations that they undergo. It provides skills relevant to a variety of fields, with an emphasis on numerical, communication and problem-solving in addition to teamwork involved in the practical situations. While there is a need for learning of facts to provide the groundwork for the subject, the emphasis is on the understanding and application of ideas; so you will be challenged by the subject and learn to think for yourself. It is important you take responsibility for your own learning outside and within the classroom. You will be set tasks to develop your study skills and help you to actively engage with the content.

## First Year:

- **Physical Chemistry** - Atomic structure, amount of substance, bonding, energetics, kinetics, chemical equilibria, Le Chatelier's principle and  $K_c$ , oxidation and reduction and redox equations.
- **Inorganic Chemistry** - Periodicity, Group 2 the alkaline earth metals, Group 7 the halogens.
- **Organic Chemistry** - Introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis.

## Second Year:

- **Physical Chemistry** - Thermodynamics, rate equations, equilibrium constant ( $K_p$ ) for homogeneous systems, electrode potentials 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, NMR spectroscopy, and chromatography.

## Practical

- Practical work is assessed in the written papers. 15% of the A level marks are for practical knowledge and understanding. You undertake 12 required practical activities over two years.
- A certificate of competency is gained through successful completion of the required practicals, this is essential for most University courses that are practical based. e.g. Medicine, Dentistry, Pharmacy etc.

## Assessment

Examination (100%)

Examining Board – AQA.

There are 3 written papers and all are 2 hours long:

Paper 1: Inorganic chemistry, with relevant physical chemistry and relevant practical skills.

Paper 2: Organic chemistry, with relevant physical chemistry and relevant practical skills.

Paper 3: All content and all practical skills.

## Special Entry Requirements

Grade 6 in Maths, grade 6 in Chemistry and grade 6 in either Biology or Physics or grade 6-6 in Combined Science is required. In addition, standard A level entry requirements apply - [www.solihullsf.ac.uk/courses/entry-requirements](http://www.solihullsf.ac.uk/courses/entry-requirements).

## Prohibited Options

None.

## What do our learners go on to do?

The wide range of skills developed during Advanced Level Chemistry mean that it is a highly regarded qualification for a vast range of courses in Higher Education, both Science and non-Science based. Chemistry is a great choice of subject for people who want a career in health and clinical professions, such as medicine, nursing, biochemistry, dentistry or forensic science. It will also equip you for a career in industry, for example in the pharmaceutical or petrochemical industries.

## Cost Implications

We offer trips that will require payment for transport. We also recommend a variety of possible textbooks that learners can buy or borrow from our library.

## Complementary Subjects or Enrichment Courses

Our learners take the whole range of subjects to run alongside their study of Chemistry. However, Chemistry is a highly mathematical subject so any learner not continuing with A Level Mathematics is strongly advised to consider the one-year Core Maths enrichment course we offer. A level Mathematics is also favoured by universities for learners continuing to Chemistry courses. It is also clear that if learners take either Biology or Physics in addition to Chemistry, they will benefit from the broad similarities of a study of the three major sciences, and this will provide a firm base for science-based university courses or careers.

### Examination Results

In the past two years, this course has seen high levels of achievement:

Year	Pass Rate A*-E%	A*-C%
2022	98%	67%
2023	96%	57%

### Contact

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