Chemistry

The A Level Chemistry courses have been designed to be a practical experience, with students undertaking both practical and theory work. The practical activities included will help the students to consolidate their understanding of the main aspects of Chemistry and equip them with the skills required to study this subject at higher levels. The course is designed to prepare students for progression either into higher education or employment and to develop their interest and enthusiasm in chemistry. Students will study, amongst many topics, aspects of Chemistry that are often seen in the media or that affect their lives; including reaction rates, pharmaceuticals, Green chemistry and climate change. It also aims to help the students to appreciate how society makes decisions about scientific issues and how Chemistry contributes to the success of the economy and society, developing a deeper understanding of 'How Science Works' and how areas of the subject relate to each of us and to the world around us.

Course Structure & Content

Physical Chemistry [Year 12]
Atomic structure; Amount of substances; Bonding; Energetics; Kinetics; Chemical equilibria, Le Chatelier's principle and K_c; Oxidation, reduction and redox equations.

Inorganic Chemistry [Year 12]
Periodicity; Group2, the alkaline Earth metals; Group 7(17), the halogens

Organic Chemistry [Year 12]
Introduction to organic chemistry; Alkanes; Halogenoalkanes; Alkenes; Alcohols; Organic analysis

Physical Chemistry [Year 13]
Thermodynamics; Rate equations; Equilibrium constant Kp for homogeneous systems; Electrode potentials and electrochemical cells; Acids and bases • Aromatic compounds; carbonyl compounds; carboxylic acids and esters; nitrogen compounds; polymers; organic synthesis; chromatography and spectroscopy (nuclear magnetic resonance)

Inorganic Chemistry [Year 13]
Properties of Period 3 elements and their oxides; Transition metals; Reactions of ions in aqueous solution

Organic Chemistry [Year 13]
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

Assessment
The A Level is assessed by three written papers and a practical endorsement.

Practical Endorsement for Chemistry – Candidates complete 12 required practicals covering key skills and topic areas over the two year course. Evidence of candidates meeting a series of competencies in practical skills is assessed by class teachers and moderated externally. Performance in this assessment is reported separately to the A Level grade as a pass/fail certificated endorsement. It does not count towards the final A Level grade.

Entry Requirements
GCSE grade 6/6 in combined science or grade 6/6/5 (6 in chemistry) if the triple science route was followed at GCSE. Students applying for this course must also have a grade 6 in mathematics and should be prepared to complete high levels of independent study and must therefore show interest and motivation for the subject.

Career Prospects
Success in A Level chemistry paves the way for many and varied possible progressions. It is also a very useful A Level for continuing on to a wide variety of different higher education courses. A few of the many careers that a chemistry A Level could lead to are pharmacology, research and development forensic science and engineering, as well as law, journalism and education.