Advanced Higher Chemistry

# Course Rationale

### The Advanced Higher Chemistry Course will help you to deepen your knowledge and understanding of the physical and natural environments. It builds on [Higher Chemistry](http://www.sqa.org.uk/sqa/47913.html), continuing to develop the underlying theories of chemistry and the practical skills used in the chemistry laboratory. The relevance of chemistry is highlighted by the study of the applications of chemistry in everyday contexts.

# Course Content

The course combines teaching of chemical theory, practical techniques and skills with an individual piece of scientific research. The areas of study are:

**Inorganic and Physical Chemistry -** This includes electromagnetic radiation and atomic spectroscopy, atomic orbital theory, prediction of molecular shape, the physical and chemical properties of transition metals and their compounds, chemical equilibria, factors which influence the feasibility of chemical reactions, reaction kinetics, order and mechanisms of chemical reaction.

**Organic Chemistry and Instrumental Analysis -** This deals with structure of organic compounds, aromatics and amines, explaining the physical and chemical properties of the compounds, key organic reaction types and mechanisms, synthesis of organic chemicals, the origin of colour in organic compounds, elemental analysis and spectroscopic techniques used to verify chemical structure, use of medicines.

**Researching Chemistry -** In this area you will gain an understanding of stoichiometric calculations, and develop key practical skills associated with a variety of different practical techniques. You will identify, research, plan and carry out a chemistry practical investigation of your choice. This area of learning will also equip you with the scientific background and skills necessary to analyse scientific articles and to use them in order to make informed choices and decisions.

# Skills

You will continue to develop skills in interpreting and analysing information to solve complex problems. You will evaluate risk, and design and carry out complex practical experiments, critically evaluating experimental procedures. You will process and analyse data and enhance your skills in communicating effectively. Throughout the course you will develop many transferable skills, including the skills of independent study and thought that are essential in a wide range of occupations.

# Course Assessment

The course assessment has two components: a question paper (75%), set and marked by the SQA and the project (25% marks). In the project you will build on the work carried out in the practical investigation, communicating your findings in a report marked by the SQA. The course assessment is graded A-D.

# Progression

The course is particularly suitable for students who wish to progress to degree courses degree and HND courses in Chemistry and Chemistry related subjects such as medicine, medical sciences, law, dentistry, pharmacy, chemical engineering, veterinary medicine, biochemistry, forensic science, engineering, environmental and health sciences.

This course could also lead straight to employment in areas such as oil and gas exploration, renewable energy development, engineering, technology, pharmaceuticals, environmental monitoring, forensics, research and development, management, civil service and education.

# Career Pathways

Food scientist Pharmacist Pharmacologist Textile Technologist Nurse Vet Occupational therapist Orthoptist Neuroscientist Pathologist Surgeon