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## Organic Chemistry and Instrumental Analysis (Advanced Higher)

**SCQF:** level 7 (8 SCQF credit points)

**Unit code:** to be advised

### Unit outline

The general aim of this Unit is to develop skills of scientific inquiry, investigation, analytical thinking along with knowledge and understanding of organic chemistry and instrumental analysis. Learners will use these skills when considering how the applications of organic chemistry and instrumental analysis can impact on our lives, as well as on the environment/society. This application and development of skills can be done using a variety of approaches, including investigation and problem solving.

The Unit covers the key areas of molecular orbitals, molecular structure, stereo chemistry, synthesis, experimental determination of structure, and pharmaceutical chemistry.

Learners will research issues, apply scientific skills and communicate information related to their findings, which will develop skills of scientific literacy.

Learners who complete this Unit will be able to:

- 1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment
- 2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

This Unit is a mandatory Unit of the Advanced Higher Chemistry Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in the *Unit Assessment Support*.

The *Course Assessment Specification* for the Advanced Higher Chemistry Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Advanced Higher Chemistry Course.

### **Recommended entry**

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ Higher Chemistry Course or relevant component Units

### **Equality and inclusion**

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Assessment Support*.

# Standards

## Outcomes and assessment standards

### Outcome 1

The learner will:

- 1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment by:**
  - 1.1 Planning and designing an experiment
  - 1.2 Following procedures safely and participating actively
  - 1.3 Making and recording observations/measurements correctly
  - 1.4 Analysing and presenting results in an appropriate format
  - 1.5 Drawing valid conclusions and giving explanations supported by evidence
  - 1.6 Evaluating experimental procedures with justification

### Outcome 2

The learner will:

- 2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills by:**
  - 2.1 Making accurate statements and giving clear descriptions
  - 2.2 Explaining an application with reasons/supporting evidence
  - 2.3 Explaining a chemical issue in terms of the effect on the environment/society
  - 2.4 Solving problems

## Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

Evidence can be drawn from a variety of sources and presented in a variety of formats. Evidence may be presented for individual Outcomes or gathered for the Unit as a whole through combining assessment holistically in a single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

### Evidence for Assessment Standard 2.1

Learners must be provided with the opportunity to make responses related to each key area. The number of responses should be appropriate to the size of the key area. More than half of the responses should be correct across the key areas.

### Evidence for Assessment Standard 2.4

Learners must be provided with the opportunity to respond to each problem solving type — making generalisations/predictions, selecting and processing information including calculations, as appropriate and analysing information. At least one correct response for each problem solving type is required.

Transfer of evidence:

- ◆ Outcome 1 in this Unit may be used as evidence of the achievement of Outcome 1 in the *Inorganic and Physical Chemistry* Unit of this Course.
- ◆ Assessment Standards 2.2, 2.3 and 2.4 in this Unit may be used as evidence of the achievement of Assessment Standards 2.2, 2.3 and 2.4 in the *Inorganic and Physical Chemistry* Unit of this Course.

Exemplification of assessment is provided in the *National Assessment Resource*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

# Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

## **1 Literacy**

- 1.1 Reading
- 1.2 Writing

## **2 Numeracy**

- 2.1 Number processes
- 2.2 Money, time and measurement
- 2.3 Information handling

## **5 Thinking skills**

- 5.3 Applying
- 5.4 Analysing and evaluating
- 5.5 Creating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level as the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

# Administrative information

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**Published:** April 2013 (version 1.0)

**Superclass:** to be advised

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## History of changes

Version	Description of change	Authorised by	Date

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Note: readers are advised to check SQA's website: [www.sqa.org.uk](http://www.sqa.org.uk) to ensure they are using the most up-to-date version of the Unit Specification.