

Higher National Unit Specification

General information for centres

Unit title: Presentation Skills in Science

Unit code: DG70 34

Unit purpose: This Unit is designed to develop transferable skills in the presentation of scientific information in written and oral formats.

On completion of the Unit the candidate should be able to:

1. Produce a scientific laboratory report.
2. Edit scientific text.
3. Produce a scientific poster.
4. Deliver an oral presentation on a scientific topic.

Credit value: 1 HN Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the centre, however it would be beneficial if candidates have qualifications or experience equivalent to the core skill Communication at SCQF level 5.

Core skills: The core skill of communication at Higher is embedded in this Unit.

Context for delivery: If this Unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes. There may be opportunities for integration with other units in the award that require the presentation of scientific data.

This Unit may also be delivered discretely as an introduction to the style and formats used in the communication of scientific information.

Assessment: The Unit develops a range of skills involved in the presentation of scientific information. As such, several tasks would be appropriate to assess competence in the four outcomes. Candidates must meet the level of performance specified in the evidence requirements for all four outcomes to achieve the unit.

Higher National Unit specification: statement of standards

Unit title: Presentation Skills in Science

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The sections of the Unit stating the Outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Produce a scientific laboratory report.

Knowledge and/or skills

- ◆ Formats and conventions used in scientific reporting
- ◆ Selection, analysis and collation of complex information
- ◆ Structure and organisation of complex information
- ◆ Appropriate register and language
- ◆ Accuracy of spelling and punctuation
- ◆ Effective presentation of graphic information
- ◆ Annotation of figures

Evidence requirements

The candidate will need evidence to demonstrate knowledge and skills by producing a laboratory report with supporting graphical information.

The report should:

- ◆ Include the following:
 - summary
 - key words
 - title
 - introduction
 - methods
 - results
 - discussion
 - conclusion
- ◆ Select, analyse and collate complex information
- ◆ Demonstrate understanding of the content appropriate to each section
- ◆ Use the past tense and third person
- ◆ Use consistently accurate spelling and punctuation
- ◆ Use accurate and appropriate titles, labels, and units for graphs, tables and diagrams

Higher National Unit specification: statement of standards (cont)

Unit title: Presentation Skills in Science

Assessment guidelines

The candidate's knowledge and skills should be demonstrated by the production of a laboratory report based on appropriate scientific data. Data could be provided to the candidate or may be generated from experiments in other units, but must provide the opportunity to cover all items in the evidence requirements previously mentioned. Lecturers may answer questions or clarify any issues relating to the data. The emphasis of the unit is on effectiveness of presentation skills.

Evidence will be generated in open book conditions where arrangements have been put in place to ensure authenticity.

Outcome 2

Edit scientific text.

Knowledge and/or skills

- ◆ Understanding of the range of purposes and applications of scientific text
- ◆ The ability to analyse and evaluate information
- ◆ The ability to abstract key information
- ◆ The ability to summarise and paraphrase complex information
- ◆ The ability to structure material
- ◆ The ability to adhere to a word limit
- ◆ The application of proofreading skills

Evidence requirements

The candidate will need evidence to demonstrate knowledge and skills by editing detailed scientific text.

The response should:

- ◆ identify, analyse and abstract the main points of a scientific text by producing structured notes
- ◆ convey key scientific information coherently and without loss of original meaning, whilst adhering to a word limit
- ◆ identify and correct errors in spelling, grammar, punctuation and sentence structure
- ◆ evaluate fully the effectiveness of communications on meeting its purpose on the needs of its audience

Assessment guidelines

It is recommended that the candidate's knowledge and/or skills should be demonstrated by summarising a detailed complex scientific text.

Higher National Unit specification: statement of standards (cont)

Unit title: Presentation Skills in Science

A separate text may be used, if necessary, to allow the candidate to demonstrate proofreading skills.

Evidence will be generated in open book conditions where arrangements have been put in place to ensure authenticity.

Outcome 3

Produce a scientific poster.

Knowledge and/or skills

- ◆ Format and style of a structured scientific poster
- ◆ Referencing methodology and techniques
- ◆ Word-processing skills

Evidence requirements

The candidate will need evidence to demonstrate knowledge and skills by producing a scientific poster.

The poster evidence should:

- ◆ Include the following:
 - title
 - abstract
 - introduction
 - methods
 - results
 - discussion
 - conclusion
 - references
- ◆ Cite reference materials in a consistent and accurate format.
- ◆ Present materials in a word-processed format

Assessment guidelines

The scientific poster should be based on **relevant and appropriate** scientific materials. These materials could be provided to or be sourced by the candidates individually. The materials must however provide candidates with the opportunity to cover all items in the evidence requirements shown above. The candidate must be given clear instructions in advance regarding the format of the poster which should be to accepted standards in terms of context, conventions and quantity. Word-processing facilities and resources, such as card and poster boards, should be made available to the candidate.

Higher National Unit specification: statement of standards (cont)

Unit title: Presentation Skills in Science

Outcome 4

Deliver an oral presentation on a scientific topic.

Knowledge and/or skills

- ◆ The ability to plan and prepare for a formal oral presentation
- ◆ The ability to locate and select relevant complex information
- ◆ The ability to organise and structure a presentation
- ◆ The ability to prepare and use effective support materials and visual aids
- ◆ The ability to use appropriate tone, pace and non-verbal communication
- ◆ The ability to adapt to the contributions of others
- ◆ The ability to respond to questions

Evidence requirements

The candidate will need evidence to demonstrate knowledge and skills by delivering an oral presentation on a scientific topic to an audience. The presentation should be for a minimum of five minutes, followed by questions. A detailed observation checklist and/or a video recording, and support materials should be retained as evidence of performance for each candidate.

The topic of the communication can be **selected by the candidate**.

Each candidate should:

- ◆ select accurate and relevant scientific information, and structure it appropriately for purpose and audience.
- ◆ produce visual aids appropriate for purpose and audience and must use these aids effectively in the presentation.
- ◆ use appropriate tone, pace and non-verbal communication, should be clear and audible, show a sense of pace and timing and make eye contact with the audience.
- ◆ respond to points of view and/or questions in a way which promotes effective communication and encourages the contributions of others.

Assessment guidelines

It is recommended that formative exercises precede the final assessment task, and that the presentation is delivered to a peer group.

Administrative Information

Unit code:	DG70 34
Unit title:	Presentation Skills in Science
Superclass category:	AF
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Higher National Unit specification: support notes

Unit title: Presentation Skills in Science

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This unit is primarily intended to provide the candidate with a practical introduction to, and understanding of, the main formats by which scientific information is communicated. The essential underpinning knowledge and skills gained will be invaluable during employment or further study. The candidate should attain the level of written and oral competence required to present scientific information in a professional situation. Emphasis is on the development of transferable skills rather than on knowledge of the scientific topics used during the delivery of the unit, although the integration of assessment with other elements of the course may be practical and useful.

Guidance on the delivery and assessment of this Unit

This unit is primarily designed to provide candidates with knowledge and skills related to employment or further study in the sciences. The unit should be delivered in a way which is relevant to the intended occupational area of the candidate and where practical should be linked or integrated with other parts of the course.

The use of candidate-centred, resource-based methodologies should be as extensive as possible to promote independent study.

Assessment of Outcomes 1-3 is by production of appropriate written evidence. Evidence may be generated in open book conditions where arrangements have been put in place to assure the authenticity of work produced.

Tutorials during the draft stages of production may provide useful support and assure authenticity.

Outcomes 1-3 do not lend themselves to sampling, but where evidence is found to be unsatisfactory, candidates may be orally questioned in order to be given feedback on any specific weaknesses and encouraged to redraft and resubmit written work.

Assessment of Outcome 4 involves the delivery of an oral presentation. If evidence is not satisfactory it is recommended that candidates be given constructive criticism of their presentation. Candidates should then deliver the presentation, which can be on the same topic, in full.

Higher National Unit specification: support notes (cont)

Unit title: Presentation Skills in Science

There are no closed–book assessments in this unit and reference to textbooks, handouts or other materials is encouraged during generation of assessment evidence. All evidence must be produced by each candidate individually.

Open learning

If this unit is delivered by open or distance learning methods, additional planning resources may be required for candidate support, assessment and quality assurance.

For Outcome 4 candidates must be directly observed and assessed. This could be achieved by arranging a group meeting, by video conferencing or by the candidate producing a video of performance which meets all assessment criteria.

A combination of new and traditional authentication materials may have to be devised for assessment and re-assessment purposes.

For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 – publication code A1030).

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Presentation Skills in Science

This is a 1 credit HN unit at SCQF Level 7 intended for candidates undertaking a science related qualification. It is designed to provide you with skills in written and oral presentation in situations most relevant to a scientist today.

On completion of this unit you should be able to:

1. Produce a scientific laboratory report.
2. Edit scientific text.
3. Produce a scientific poster.
4. Deliver an oral presentation on a scientific topic.

The four outcomes which make up the unit are described below; emphasis is placed on how they are assessed.

Outcome 1

You will be given an overview of how to produce a structured scientific laboratory report. The lectures/tutorials for Outcome 1 will focus on particular aspects such as how to write in the past tense and third person; best formats to present results in; appropriate content for each section of the report.

This outcome is assessed by means of a report which should conform to the specified format and structure and be written in the appropriate style.

Outcome 2

This outcome focuses on how to condense scientific text effectively. You will be given practice in the skills of paraphrasing (using your own words), and abstracting (identifying key points). The importance of maintaining coherence will be emphasised.

Proofreading skills will be highlighted such as the importance of identifying and correcting errors in spelling, grammar, punctuation, and sentence structure. Support materials will be provided for this activity.

Assessment will involve two main components

- ◆ A written summary of a piece of scientific text in which you need to demonstrate the ability to paraphrase and abstract as well as the ability to display coherence and adhere to a word limit.
- ◆ A proofreading exercise in which you can display evidence of all the proofreading skills listed above.

General information for candidates (cont)

Unit title: Presentation Skills in Science

Outcome 3

In this outcome you will be introduced to the concept of a scientific poster. Exemplars should be provided to aid your understanding of the structure and layout of a poster. Lectures/tutorials will focus on the content appropriate to each section and on the style of writing.

Examples of how to cite reference materials and alternative reference systems will be given.

As evidence for Outcome 3 you are required to produce a scientific poster to a professional standard. Resource materials, including poster boards and access to word-processing facilities will be provided.

Outcome 4

In Outcome 4 you will practise the skills needed to present an oral presentation. Lectures/tutorials will initially focus on how to structure the presentation to both your purpose and to your audience. This will include choice of topic, amount of information, and depth of detail. Visual aids will be discussed along with opportunities for you to experiment with them. Advice on how to handle questions from an audience will be given.

You will deliver a talk on a scientific topic of your choice to an audience. This talk should last for at least 5 minutes and must be followed by an opportunity for the audience to ask questions. Your handling of these questions contributes to your assessment.

Time constraints mean that most assessments for this unit will be produced in your own time. There are no closed book assessments in this unit. This essentially means that you may make reference to textbooks, handouts or other materials in order to produce evidence of achievement. Each candidate must produce work on an individual basis and the assessment for Outcome 4 must be delivered to an audience.

To succeed in this unit you must achieve a satisfactory level of performance in all assessments.