SCOTTISH QUALIFICATIONS AUTHORITY

Arrangements for:

HND Applied Biological Sciences

Group Award Code: G7WR 16

Validation date: June 2005

Date of original publication: February 2006

Version: 05 (September 2015)

Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Contents

History of changes

It is anticipated that changes will take place during the life of the qualification, and this section will record these changes. This document is the latest version and incorporates the changes summarised below.

Version number	Description	Date
5	**Mandatory Units** Fundamental Chemistry: Theory and Laboratory Skills (H92X 34) added as an alternative to Fundamental Chemistry: Theory and Practice (DH2K 34) Cell Biology: Theory and Laboratory Skills (H927 34) added as an alternative to Cell Biology: Theory and Practice (DJ1K 34) Biochemistry: Theory and Laboratory Skills (H922 34) added as an alternative to Biochemistry: Theory and Practice (DH2J 34) Animal Biology (H921 35) added as an alternative to Animal Biology (DP4L 34) Instrumental Techniques 1 (H930 35) added as an alternative to Instrumental Techniques: Theory and Practice 1 (DH54 35) DNA and Molecular Techniques (H92A 35) added as an alternative to DNA and Molecular Techniques: Theory and Practice (DJ6X 35) **Optional Units** Biotechnology: An Introduction (H926 34) added as an alternative to Biotechnology: An Introduction (DJ00 34) Animal and Plant Cell Culture: An Introduction (H920 34) added as an alternative to Animal and Plant Cell Culture (DH2H 34) Instrumental Techniques 2 (H931 35) added as an alternative to Instrumental Techniques: Theory and Practice 2 (DH2N 35) Immunological Techniques (H92E 35) added as an alternative to Immunological Techniques: Theory and Practice (DH2L 35) Fundamental Chemistry: An Introduction (H92W 33) added as an alternative to Fundamental Chemistry: An Introduction (DX29 33)	15/09/2015
4	**Revised Units:** DN37 34 Ecology and Ecosystems has been revised by H93A 34. DG6X 35 Protein Structure and Function has been revised by H92J 35. DP4M 34 Plant Biology has been revised by H92H 35. DH55 34 Microbiology: Theory and Practice has been revised by H92G 34 Microbiology: Theory and Laboratory Skills. DH2P 35 Microbiological Techniques: Theory and Practice has been revised by H92F 35 microbiological Techniques. DN39 35 Human Metabolism has been revised by H92D 35. DG71 35 Human Body Structure and Function has been revised by H92C 35. DX2J 35 Applied Chemical Sciences: Graded Unit 2 has been revised by H92L 35. DP50 35 Applied Biological Sciences: Graded Unit 2 has been revised by H91Y 35. DJ89 34 Applied Sciences: Graded Unit 1 has been revised by H91W 34. DG6Y 34 Applied Biomedical Techniques has been revised by H91T 34. DN8C 34 Statistics for Science 1 has been revised by H8XT 33. DN8D 33 Mathematics for Science 1 has been revised by H8XP 33. Old	22/05/15

	units will finish on 31/07/2017.	
3	**Revision of Unit:** DE1K 33 Workplace Communication in English has been revised by H8T2 33 and finishes on 31/07/2016.	16/03/15
2	Change to Graded Unit Core Skills statement. Amendments to framework.	27/06/06

1 Introduction

This is the Arrangements Document for the HND Applied Biological Sciences (G7WR 16), which was validated in June 2005. This document includes: background information on the development of the Group Award, its aims, guidance on access, details of the Group Award structure, and guidance on delivery.

This Group Award replaces the HND Applied Biological Sciences (G2E5 16) and HND Biological Sciences (G2DT 16).

The revised award in Applied Biological Sciences is designed to equip candidates with the knowledge, understanding and skills required for success in current and future employment or progression to further academic and/or professional qualifications.

This document is designed to assist centres who will be delivering the revised award and outlines the background details to the development, the general and specific aims of the qualification, changes in the structure and content, recommended delivery and assessment guidance and it also details the structure of the new qualification.

2 Rationale for the revision of the award

2.1 Background

A number of centres originally developed locally devised HND awards in Applied Biological Sciences and Biological Sciences. It was agreed with centres that SQA would produce a National award that would suit all colleges needs and a development team of all delivering centres was formed.

The validated HNC Applied Sciences award is a replacement of the previous HNC Applied Sciences and also replaces the HNC in Applied Biological Sciences (G1ET 15) and Biological Sciences (G1EC 15) as well as the first year of the HND awards mentioned below.

The HNC Applied Sciences was successfully validated in April 2005 and is embedded in 6 HND qualifications including:

- HND Environmental Sciences
- HND Applied Biological Sciences
- HND Applied Chemistry
- HND Biomedical Sciences
- HND Biotechnology
- HND Applied Sciences

2.2 The Need for the Award

In April 2004, the HNC Applied Sciences award was validated under the new design principles. At validation the intention was stated that the HNC would form a flexible basis for the first year for suitable new HND Science awards to include recommended options for progression to specific HNDs. The majority of the existing HN Science courses were approaching their lapsing period and it was

considered the ideal time to rewrite HND Science courses under the SQA design principles including the new HND Applied Biological Sciences.

A separate Arrangements document exists for the HNC Applied Sciences (G7V9 15).

The review has provided an opportunity for inclusion of up-to-date technical content, revised assessment strategies, flexibility to match current employment needs and more appropriate recognition of the needs of candidates progressing to Higher Education Institutions.

2.3 Market research, consultation and development processes

Extensive consultation was carried out at all stages of the review process to ascertain both the level of uptake of the awards as well as the relevance of the framework and Units.

This consultation involved:

- Colleges
- Employers
- Candidates
- Higher Education Institutions to which successful candidates could articulate

In reviewing these awards, consultation was undertaken at key stages in the development schedule. Development Teams and the Team Leaders of each group helped to guide the overall development process.

Stakeholder	Method of consultation
Employers	♦ Questionnaire to gather feedback on award content and structure ♦ Face-to-face interviews ♦ Telephone interviews
Higher Education Institutions	♦ Questionnaire ♦ Face-to-face interviews
Centres	♦ All delivering centres invited onto development teams ♦ Questionnaire sent to all centres ♦ HN Science conference held in January 2004 and February 2005 to update and inform centres and gather further feedback ♦ Information updates posted on SQA website on HN Science pages and feedback sought
Candidates	♦ Questionnaires to gather views of existing candidates on structure, content and assessment

All colleges were contacted and asked to complete a questionnaire with the aim of collating information as to the appropriate curriculum areas for an updated HND Applied Biological Sciences framework, the Core Skills required, and the potential for employment and/or progression for graduates with the qualification. Comments made were taken into consideration when reviewing the final structure of the awards. The demand for Core Skills by industry was supported by the results.

2.4 Articulation

The qualification provides candidates with the relevant mix of competences to enable entry to employment whilst at the same time allowing candidates an articulation route to degree level study.

A large number of related degree programmes are offered at a range of institutions throughout Scotland. The HND provides entry into second and possibly third year of a variety of degree programmes.

2.5 Candidates for Whom this Award is Intended

The existing HN Applied Biological Sciences/Biological Sciences programmes are already popular in the delivering colleges, and it is envisaged that the updated HND programme will improve students' employment and progression prospects.

These courses will recruit students from school leavers, adult returners and those candidates in employment who wish to enhance their career prospects.

The HND Applied Biological Sciences is intended to act both as a vocational qualification to meet the workforce demands of the science industry and as an entry route to Science degrees at Scottish Universities, particularly those degrees covering areas of the biological sciences.

2.6 Relation of this Award to Existing SQA Provision

Since this award was written under the new design principles for HNCs and HNDs, it is intended that it will replace the existing HNC/D Applied Biological Sciences awards and HNC/D Biological Sciences awards.

2.7 Potential Progression to Employment

This programme has been designed to meet the needs of this expanding employment market and students will develop the competences required to enhance their ability to obtain employment as a senior technician, junior laboratory manager or production process controller in Science based industries.

Typical job opportunities are diverse and include posts in:

- industrial research and development laboratories
- quality assurance laboratories
- college, university and research institute laboratories and
- local authority laboratories

Much of contemporary industrial production involves complex hi-tech processes. Supervision and control of such processes requires the knowledge and competences incorporated in the HND Applied Biological Sciences. Production control posts also exist in a wide range of industrial sectors including:

- chemical
- bio-medical
- pharmaceutical
- food processing

- textiles
- bio-technology
- soft drinks, brewing and distilling

3 Aims of the award

3.1 General aims of the award

The overall aim is to provide a progressive, integrated and coherent education which will be responsive to the needs of candidates, employers and higher institutions. Specifically these are to:

- Develop candidates' knowledge and skills such as planning, analysis and synthesising in the area of biological science.
- Develop employment skills and enhance candidates' employment prospects by providing the student with a wide range of practical laboratory skills including microbiological skills and assays. Candidates will also become familiar with 'soft skills' such as learning to work on their own or in a team environment as well as developing skills in producing oral and written reports and enhancing their presentation and communication skills.
- Enable progression within the SCQF framework to degree studies or a PDA/SVQ within the workplace as students are undertaking a wide range of transferable skills and underpinning knowledge.
- Develop study and research skills in the area of biological science the use of which to be demonstrated in the Graded Units.
- Develop transferable skills including Core Skills to be demonstrated across all Units including IT skills, statistics, presentation skills, working in a team and problem-solving.
- Provide a stimulating and intellectually satisfying learning experience. The level and content of knowledge necessary for successful completion of this award will require diligence and commitment from the candidate. The structure of the award, design of the assessments and the relationship between theory and observed good practice are intended to provide a balance between presented learning and developmental thinking on the part of the student.
- Develop in the candidate skills of independent study and communication and an informal sense of the responsibility attached to the work of biological scientists which should be demonstrated particularly in Graded Unit 2.
- Provide the candidate with a deeper underpinning knowledge in biological science.

3.2 Specific aims of the award

The aims of the HND Applied Biological Sciences specifying the knowledge and skills required in order to be deemed competent in this subject area are to:

- Prepare candidates for an appropriate level of employment, in science areas such as research and industrial laboratories; biotechnology, chemical, microbiological, pharmaceutical, and environmental industries.
- Develop a range of contemporary vocational skills relating to the use, support and development of systems appropriate to employment at technician or professional level.

- Develop options to permit an element of vocational specialisation in a variety of biological science areas in Units such as: immunology, microbiology, medicinal chemistry, biotechnology, animal biology, cell biology.
- Prepare candidates for progression to further studies in science related disciplines.
- Provide a flexible route to a qualification, meeting demand, for example, for those already in employment. The unitised structure of the course and the intended modes of delivery may provide access to this qualification from those in employment through day-release provision and for direct entry or seconded students through full-time provision. Discrete Units will be available for study.
- Provide candidates with a wider range of practical laboratory skills to further enhance job prospects through the practical content of the course (see number of practical hours per Unit.

4 Access to awards

4.1 Access requirements for the award

It is intended that admission to this course should be as broadly based as possible, but that this should be consistent with the selection of candidates who have a reasonable chance of successfully completing the course. The following entry requirements are given as guidelines only:

- One Science Higher and not fewer than three Standard Grade 3/Intermediate 2 passes, including Chemistry, Biology, Biotechnology or Human Biology and Mathematics.
- HNC Applied Sciences or other relevant HNC qualification.
- SVQ level 3 in a relevant Science area.
- SWAP Access to Science. Candidates should preferably possess some NQ Units at Higher level.
- Scottish Group Award (SGA) in Science at Intermediate 2.
- Qualification comparable to the above, gained through other awarding bodies, such as GCSE, City and Guilds.
- At the discretion of the presenting centre for applicants with a different experiential background, who could benefit from taking the course or Units within the course, eg adult returners, overseas students with relevant qualifications and/or work experience.

4.2 Alternative Access Arrangements

The presenting centre may operate alternative access arrangements in cases where the candidate is convinced s/he already has the required competences in a given area. These arrangements are as follows:

- Assessment on demand
- Credit Transfer
- Accreditation of Prior Learning
- Relevant Work Experience eg science industries, medical and NHS laboratories

Individual presenting centres will outline their systems for each of these as appropriate.

4.3 Core Skills Entry Profile

Core Skill	Recommended Entry level
Communication	SCQF level 5
Numeracy	SCQF level 4
Information Technology	SCQF level 5
Problem Solving	SCQF level 4
Working With Others	SCQF level 4

5 Award(s) structure

Summary of design principles — HNDs will:

- be at SCQF level 8 and have 240 SCQF credit points (30 HN credits)
- have a minimum of 64 SCQF credit points (8 HN credits) at level 8
- have one Graded Unit of 8 SCQF points at level 7, plus 16 SCQF credit points of Graded Units at level 8
- have a mandatory section with a minimum of 96 SCQF credit points, including the Graded Units

5.1 HND Applied Biological Sciences Framework

Mandatory Units (24 credits)

Unit Title	Code	SCQF Credit points	SCQF level	SQA Credit Value
Presentation Skills in Science	DG70 34	8	7	1
Statistics for Science 1	H8XT 34*	8	7	1
Information Technology Applications Software 1	D75X 34	8	7	1
Quality and Health & Safety Systems in Science Industries	DF82 34	8	7	1
Fundamental Chemistry: Theory and Practice Or Fundamental Chemistry: Theory and Laboratory Skills	DH2K 34 H92X 34	16 16	7 7	2 2
Applied Sciences: Graded Unit 1	H91W 34*	8	7	1
Applied Biological Sciences: Graded Unit 2	H91Y 35*	16	8	2
Protein Structure & Function	H92J 35*	8	8	1
Instrumental Techniques: Theory and Practice 1 Or Instrumental Techniques 1	DH54 35 H930 35	8 8	8 8	1 1
Animal Biology Or Animal Biology	DP4L 34 H921 35	8 8	7 7	1 7
Plant Biology	H92H 35*	8	7	1
Cell Biology: Theory and Practice Or	DJ1K 34	8	7	1

Unit Title	Code	SCQF Credit points	SCQF level	SQA Credit Value
Cell Biology: Theory and Laboratory Skills	H927 34	8	7	1
DNA Structure and Function	DJ6Y 34	8	7	1
Biochemistry: Theory and Practice Or Biochemistry: Theory and Laboratory Skills	DH2J 34 H922 34	8 8	7 7	1 1
Microbiology: Theory and Laboratory Skills	H92G 34*	16	7	2
Genetics	DP4P 34	8	7	1
Immunotechnology: Theory & Practice	DH2M 35	8	8	1
DNA and Molecular Techniques: Theory and Practice Or DNA Molecular Techniques	DJ6X 35 H92A 35	16 16	8 8	2 2
Microbiological Techniques	H92F 35*	16	8	2

Optional Units (1–6 credits)

Unit Title	Code	SCQF Credit points	SCQF level	SQA Credit Value
Ecology & Ecosystems	H93A 34*	8	7	1
Human Body Structure & Function	H92C 35*	16	8	2
Environmental Biology	DO33 13	8	7	1
Biotechnology: An Introduction Or Biotechnology: An Introduction	DJ00 34 H926 34	8 8	7 7	1 1
Animal and Plant Cell Culture: An Introduction Or Animal and Plant Cell Culture: An Introduction	DH2H 34 H920 34	8 8	7 7	1 1
Instrumental Techniques: Theory and Practice 2 Or Instrumental Techniques 2	DH2N 35 H931 35	8 8	8 8	1 1
Bioinformatics	DV9D 35	8	8	1
Employment Experience 2	D77H 34	8	7	1
Immunological Techniques: Theory and Practice Or Immunological Techniques	DH2L 35 H92E 35	8 8	8 8	1 1
Fundamental Chemistry: An Introduction Or Fundamental Chemistry: An Introduction	DX29 33 H92W 33	8 8	6 6	1 1
Applied Biochemical Techniques	H91T 34*	8	7	1
Human Metabolism	H92D 35*	16	8	2

Mathematics for Science 1	H8XP 33	8	6	1

Broadening Units (Optional) up to a maximum of 5 credits

Unit Title	Code	SCQF Credit points	SCQF level	SQA Credit Value
Workplace Communication in English	H8T2 33*	8	6	1
Personal Development Planning	DE3R 34	8	7	1
Work Role Effectiveness (2003)	DG6E 34	24	7	3
or				
Work Role Effectiveness (2003)	DG6G 35	24	8	3

Additional HN Science Unit may be added as appropriate.

*Refer to history of changes for revision details.

5.2 Graded Units

The purpose of the Graded Unit is to assess the candidate's ability to retain and integrate the knowledge and/or skills gained in the Unit; to assess that the candidate has met the principal aims of the Group Award; and to grade candidate achievement within the Graded Unit.

Candidates will complete a 1 credit Graded Unit at level 7 during the last block of study in year 1 of the HND and will also complete a 2 credit Graded Unit at level 8 in year 2 of the HND Applied Biological Sciences award.

Type of Graded Units

HNC Applied Sciences: Investigation Report (HND Applied Biological Sciences Year 1)

This Unit will be a project based on an investigation which should take place during the last block of study. It will cover a range of skills achieved through studying the mandatory Units of the award.

HND Applied Biological Sciences: Practical Assignment

This Unit will be a project based on a practical assignment which should take place during the last block of the second year of study. It will cover a range of skills achieved through studying the mandatory Units of the award.

Rationale for Graded Unit Assessment

Investigation Report

Candidates will be given a topic to research. They will produce a report covering the planning, developing and evaluation stages of the investigation. An investigation report allows candidates to integrate knowledge and skills gained in the mandatory Units. It allows them to use research skills, set timescales, identify main issues, methods and sources of research. It also allows them to use scientific reporting skills in setting out the aims, data, analysis, summary, evaluation and references relevant to their investigation.

Practical Assignment

Candidates will be given a practical assignment to carry out. They will produce a laboratory report covering the planning, developing and evaluation stages of the project. A practical assignment allows candidates to integrate knowledge and skills gained in the mandatory Units. It allows them to use practical laboratory skills, GLP, risk assessments and other Health and Safety considerations as well as extending investigative skills to a practical situation. It also allows them to use laboratory reporting skills by producing a logbook/diary of their activities as well as the final laboratory report.

5.3 Assessment of the HND Graded Unit

The timing of the delivery of Graded Units will vary from centre to centre and will most likely be focused on the second half of the academic year. However, it is in the best interest of candidates to introduce the concept of Graded Units as early as possible in the academic year.

Centres should consider planning in advance for the following where appropriate:

PROJECTS

Identification of course team
Identification of lead assessor
Identification of lead internal Moderator
Identification of assessors and internal Moderators
Production of a project brief and task instructions
Vetting of project brief and task instructions

Prior moderation from SQA
Production of detailed marking instructions
Vetting of detailed marking instructions
Identification of markers/marker team
Marking/cross marking
Marking check/internal moderation
Marker reports
Authenticity of candidate work
Finalisation of grades
Issue of results
Centre appeals process
Re-assessment
Forwarding results to SQA and maintaining assessment records

NB: As indicated above, prior moderation of project specifications and centre developed exemplars is available from SQA.

More detailed guidance can be found in Guidance on Group Award Graded Units: Using the Design Principles for Higher National Certificates and Diplomas and Guide to Internal Moderation for SQA Centres.

5.4 Core Skills

This award have been designed using the new design principles and therefore the importance of Core Skills has been recognised and these are developed throughout the award. These Core Skills may be embedded in the entry qualifications that the presenting students have already achieved, eg, Problem Solving at SCQF level 5 is embedded in all Science Highers. It should be noted that although there is no mandatory entry and exit levels the following is recommended:

HND Applied Biological Sciences

Core Skill	Recommended Entry level	Recommended Exit level
Communication	SCQF level 5	SCQF level 6
Numeracy	SCQF level 4	SCQF level 6
Information Technology	SCQF level 5	SCQF level 6
Problem Solving	SCQF level 4	SCQF level 6
Working With Others	SCQF level 4	SCQF level 5

5.4.1 Core Skills Embedding

There may be opportunities to gather evidence towards Core Skills or Core Skills Components however there is only automatic certification as detailed below:

Core Skill	Component	HN Unit	Level	Mandatory/ Optional
Communication	Oral Communication	Presentation Skills in Science	H	M
	Written Communication	Presentation Skills in Science	H	M
Numeracy	Using Graphical Information			
	Using Number			

Core Skill	Component	HN Unit	Level	Mandatory/ Optional
Information Technology	Using Information Technology	Information Technology: Applications Software 1	H	M
Problem Solving	Critical Thinking	Applied Biological Sciences: Graded Unit 2	H	M
	Planning and Organising		H	M
	Reviewing and Evaluating		H	M
Working with Others				

5.4.2 Core Skills signposting

The Core Skills of Numeracy and Working with others are signposted in this award.

Working with Others — A lecturer may actively choose to develop the general skill of "Work with others in a group to analyse, plan and complete an activity" at SCQF level 5 by setting tasks for group activity and arranging joint information feedback sessions. Candidates could be encouraged to collaborate at the early stages of their search activities. The general skill required for this level is for candidates to:

'Work with others in a group to analyse, plan and complete an activity'.

This Core Skill could be developed in a number of Units, for example:

Graded Unit 2 — candidates could develop this Core Skill by working in a group to set up laboratory equipment, although all data must be the candidates own. This would allow candidates to develop the specific skills of:

- agree allocation of responsibilities taking account of own strengths and weaknesses and those of others
- support co-operative working

A number of Units contain a laboratory Outcome, these Units could also signpost the Core Skill of Working with Others. The Units are listed below:

Fundamental Chemistry: Theory and Practice
Cell Biology: Theory and Practice
Protein Structure and Function

These Units would allow candidates to develop the specific skills of:

- agree allocation of responsibilities taking account of own strengths and weaknesses and those of others
- support co-operative working

Numeracy — The Core Skill in Numeracy could be developed in a number of the Units within the HND Applied Sciences award.

The two components of Numeracy are:

- Using Number. The general skills for using number at SCQF level 6 are:

  'Apply in combination a wide range of numerical, statistical and other mathematical skills to process complex information in generalised contexts'

- Using Graphical Information. The general skills for using graphical information at SCQF level 6 are:

  'Apply a wide range of graphical skills to interpret and present complex information in generalised contexts'

The Units are listed below:

Statistics for Science 1
Fundamental Chemistry: Theory and Practice

These Units would allow the candidate to develop the specific skills of:

- Using Number — decide on the steps and operations to be carried out.
- Using Number — Carry out a number of sustained, complex calculations.
- Using Graphical information — select an appropriate form of table, graph, chart, diagram or qualitative form and communicate information in that form.

5.5 Conditions of the award

Candidates will be awarded an HND Applied Biological Sciences on successful completion of 240 SCQF credit points which will include successful achievement of all the Units and the Graded Unit in the mandatory section (24 mandatory Unit credits and 6 option Unit credits giving a total of 30 credits). The mandatory Units include 72 SCQF points at level 8, ie the minimum number of SCQF points at level 8 can be achieved through attainment of the mandatory section.

6 Approaches to delivery and assessment

6.1 Content and Context

The HND Applied Biological Sciences is a specialised award which allows candidates to gain advanced knowledge and technical skills in quality issues, microbiology, DNA technology, immunology, cell culture and instrumentation together with specialised biological areas. As such, it is intended to prepare candidates for employment at senior technician level in general science laboratories.

The award allows candidates to progress to a range of study options in Higher Education, particularly in the field of biological sciences.

6.2 Delivery and Assessment

Although centres can choose what order in which to teach the Units within the awards, guidelines have been produced on timetabling the mandatory Units (Appendix 3). These timetables reflect the building block nature of the Units.

The assessment strategy of the design principles to encourage a more holistic approach to assessment has been adopted in both awards. The new HN Unit specification places the emphasis on reducing assessment load for candidates and centres by devising assessments which assess the entire theory content of the Unit where appropriate, and by sampling of knowledge and/or skills carried out under closed-book conditions on a random basis to ensure the candidates do not have prior knowledge of the sample.

Unit specifications detail exactly the evidence requirements and assessment procedures for each assessment event. Should centres wish to use a different mode of assessment from that recommended, they should seek prior moderation from SQA.

Assessment exemplar material for all mandatory Units of this award are available from SQA.

6.3 Re-assessment

The way that centres reassess candidates is integral to the way that they manage assessment as a whole and as such, will be subject to internal moderation. In order to ensure that the assessment process is as holistic as possible and that assessors are able to effectively judge candidates' performance in the Outcome or Unit as a whole, it may not always be possible to reassess only those parts of the performance in which candidates have not satisfactorily demonstrated competence. Scenarios where candidates may require to re-do the whole assessment include:

- assessment which test knowledge and other cognitive skills and where it may not be possible to extract some of the items for re-assessment
- where parts of several Outcomes are involved
- where a project has been designed as an integrated assessment and where there is a requirement to complete the project as a single complex task

Candidates may require to do only part of an assessment where their evidence has been generated over a period of time and/or a discrete part of the Unit, such as an Outcome, has been assessed originally.

6.3.1 Eligibility for re-assessment

Candidates who have not satisfactorily demonstrated their attainment of knowledge and/or skills and/or competence in the whole or only part of an assessment may be considered for re-assessment.

6.3.2 Developing Alternative Assessments

The design of the original assessments inform the re-assessment process to a large extent, as these determine the type of assessment instruments used and the purpose of the assessment. Normally, centres build up banks of assessments which can be used in whole or part for re-assessment purposes.

Assessment writers should refer to the Unit specification and where available the assessment exemplar when developing an alternative assessment and ensure that it is of equal demand to the original assessment and that it covers all necessary criteria – for example Core Skills achievement. Where candidates have not provided

satisfactory evidence for knowledge and skills items which have been sampled, the would normally be reassessed on a different sample.

6.3.3 Re-assessment of Graded Units

Re-assessment of a project based Graded Unit would normally be based on an alternative assessment task. For the latter, centres would be encouraged to set the parameters at the start of the project giving details of the draft submission date and final submission date. The overall grade is derived from the total number of marks across all of the sections, although the minimum evidence for each section must be achieved.

6.4 Assessment Moderation

All instruments of assessment used within these qualifications should be internally moderated, including exemplar material provided, using the appropriate policy within the centre and the guidelines set by SQA. This will ensure that internal assessment is within the national guidelines for these qualifications.

For further information on internal and external moderation refer to the SQA Guide to Assessment and Quality Assurance for Colleges of Further Education (August 2003, publication code AA0841/3).

6.5 Open Learning

HND Applied Biological Sciences could be delivered by Open Learning. Candidates would have to attend the presenting centre or other agreed institution to complete the practical assessments. Centre-devised supervision agreement should detail controlled conditions to ensure authenticity of evidence.

6.6 Credit transfer transition arrangements

In principle, candidates can be given credit transfer between current HNC/D Units and new HN Units.

Given that there are several different HNC/D Applied Biological Sciences/Biological Science awards currently being delivered containing varying HN descriptors, mapping Units and awards for credit transfer should be done on an individual basis for those candidates seeking second year entry in the future.

An example of transitional arrangements between the current HNC Biological Sciences and the new HNC Applied Sciences is illustrated in Appendix 3. This table identifies the credit transfer candidates can achieve towards the new HND Applied Biological Sciences. However, it is recommended that current students complete the second year of current HND Science awards.

7 General information for centres

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs **(www.sqa.org.uk)**.

Internal and external moderation

All instruments of assessment used within this/these Group Award(s) should be internally moderated, using the appropriate policy within the centre and the guidelines set by SQA.

External moderation will be carried out by SQA to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external moderation can be found in SQA's Guide to Assessment and Quality Assurance for Colleges of Further Education **(www.sqa.org.uk)**.

8 General information for candidates

The HND Applied Biological Sciences award is designed to prepare you for a range of positions in a broad spectrum of science industries or to prepare you for entry into second or third year of a degree programme at University.

You will develop a range of general skills, for example:

- study and research skills
- employment skills
- independent study and communication skills
- planning, analysis and team working skills
- transferable skills including Core Skills

In addition, the HND Applied Biological Sciences will allow you to:

- develop options to permit an element of vocational specialisation
- develop practical skills in a laboratory environment
- develop a range of contemporary vocational skills

As well as undertaking assessments for all Units, you will also be required to undertake an investigation in the HND Year 1 (HNC Applied Sciences Graded Unit 1) and a project in the HND year 2 (HND Applied Biological Sciences Graded Unit 2). The purpose of these assessments is to integrate the knowledge and skills you have gained during your period of study. Achievement of the Graded Units will be at A, B or C pass.

9 Glossary of terms

SCQF: This stands for the Scottish Credit and Qualification Framework, which is a new way of speaking about qualifications and how they inter-relate. We use SCQF terminology throughout this guide to refer to credits and levels. For further information on the SCQF see Appendix 2 or visit the SCQF website at **www.scqf.org.uk**.

SCQF credits: One HN credit is equivalent to 8 SCQF credit points. This applies to all HN Units, irrespective of their level.

SCQF levels: The SCQF covers 12 levels of learning. HN Units will normally be at levels 6–9. Graded Units will be at level 7 and 8 (see Section 6 for further information on this).

Subject Unit: Subject Units contain vocational/subject content and are designed to test a specific set of knowledge and skills.

Graded Unit: Graded Units assess candidates' ability to integrate what they have learned while working towards the Units of the Group Award. Their purpose is to add value to the Group Award, making it more than the sum of its parts, and to encourage candidates to retain and adapt their skills and knowledge.

Dedicated Core Skill Unit: This is a Unit that is written to cover one or more particular Core Skills, eg HN Units in Information Technology or Communications.

Embedded Core Skills: This is where the development of a Core Skill is incorporated into the Unit and where the Unit assessment also covers the requirements of Core Skill assessment at a particular level.

Signposted Core Skills: This refers to the opportunities to develop a particular Core Skill at a specified level that lie outwith automatic certification.

Qualification Design Team: The QDT works in conjunction with a Qualification Manager/Development Manager to steer the development of the HNC/D from its inception/revision through to validation. The group is made up of key stakeholders representing the interests of centres, employers, universities and other relevant organisations.

Consortium-devised HNCs and HNDs are those developments or revisions undertaken by a group of centres in partnership with SQA.

Specialist single centre and specialist collaborative devised HNCs and HNDs are those developments or revisions led by a single centre or small group of centres who provide knowledge and skills in a specialist area. Like consortium-devised HNCs and HNDs, these developments or revisions will also be supported by SQA.

10 Appendices

See following pages for appendices.

Appendix 1

Core Skills Signposting

Appendix 1

Units	Core Skills				
	Numeracy	**Communication**	**Information Technology**	**Problem Solving**	**Working with others**
Statistics for Science 1	✓				
Presentation Skills in Science		✓Embedded SCQF level 6			
Information Technology: Applications Software 1			✓Embedded SCQF level 6		
Quality and Health & Safety Systems in Science Industries					✓
Fundamental Chemistry: Theory and Practice	✓			✓	
Cell Biology: Theory and Practice					
DNA Structure and Function					
Microbiology: Theory and Practice	✓				
Biochemistry: Theory and Practice					
DNA Molecular Techniques: Theory & Practice				✓	
Microbiological Techniques: Theory & Practice	✓				
HNC Applied Sciences Graded Unit 1				✓	
HND Applied Biological Sciences: Graded Unit 2				✓	
Immunological Techniques				✓	
Animal Biology 1				✓	
Plant Biology				✓	
Protein Structure and Function				✓	✓
Immunotechnology: Theory and Practice					
Instrumental Techniques: Theory and Practice 1	✓			✓	
Genetics					

Appendix 2

Credit Transfer Arrangements

Appendix 2

Credit Transfer Arrangements

TO BE CONFIRMED

New Unit	Credit value	Core/Option	Old Unit	Credit value	Core/Option	Old Outcomes covering new Unit	Outcomes in new Unit not covered

Appendix 3

Guidelines for timetabling of mandatory Units

Appendix 3

HND Applied Biological Sciences year 1

This is a suggested timetable for delivery based on a 3 block system. Centres are free to devise their own timetable as suits their requirements.

Block 1	Fundamental Chemistry: T&P **C**	Microbiology: T&P **C**	Quality and H&S Systems **C**	Cell Biology **C**	IT:AS 1 **C**
Block 2			Presentation Skills in Science **C**	Biochemistry **C**	Animal Biology **C**
Block 3	Graded Unit 1 **C**	DNA Structure and Function **C**	Statistics for Science 1 **C**	Optional Unit	Plant Biology **C**

HND Applied Biological Sciences year 2

Block 1	Genetics **C**	Instrumental Techniques 1 **C**	Immunotechnology: Theory and Practice **C**	DNA and Molecular Techniques **C**	
Block 2	Microbiological Techniques **C**		Protein Structure & Function **C**	Optional Unit	Optional Unit
Block 3	Graded Unit 2 **C**		Optional Unit O	Optional Unit O	Optional Unit O