# Higher National Unit specification

## General information

**Unit title:** Biomedical Pathology (SCQF level 8)

**Unit code:** H925 35

**Superclass:** PB

**Publication date:** May 2015

**Source:** Scottish Qualifications Authority

**Version:** 01

## Unit purpose

This Unit is designed to enable learners to investigate pathological factors relating to a variety of medical conditions. It is a specialised Unit designed for learners working towards HND Applied Biological Sciences.

## Outcomes

On successful completion of the Unit the learner will be able to:

1 Describe body malfunctions in anaemias, cardiovascular and respiratory disorders and liver diseases.
2 Explain causal networks in a number of disease aetiologies.
3 Analyse and evaluate biomedical information in terms of pathological status.

## Credit points and level

1 Higher National Unit credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

## Recommended entry to the Unit

Entry is at the discretion of the centre, however it is recommended that learners should have completed the HN Unit H92C 35 *Human Body Structure and Function* or equivalent.

## Higher National Unit specification: General information (cont)

**Unit title:** Biomedical Pathology (SCQF level 8)

## Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components 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.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website **(http://www.sqa.org.uk/sqa/46233.2769.html)**.

## 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.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

## Higher National Unit specification: Statement of standards

## Unit title: Biomedical Pathology (SCQF level 8)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

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. Learners 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

Describe body malfunctions in anaemias, cardiovascular and respiratory disorders and liver diseases.

### Knowledge and/or Skills

- Physical malfunctions
- Chemical malfunctions
- Biological malfunctions
- Rules for clinical nomenclature

## Outcome 2

Explain causal networks in a number of disease aetiologies.

### Knowledge and/or Skills

- Cellular pathology
- Biochemical pathology
- Physiological pathology

## Outcome 3

Analyse and evaluate biomedical information in terms of pathological status.

### Knowledge and/or Skills

- Signs and symptoms
- Biochemical results
- Haematology results
- Physiological measurements
- Histology results

## Higher National Unit specification: Statement of standards (cont)

## Unit title: Biomedical Pathology (SCQF level 8)

**Evidence Requirements for this Unit**

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can analyse and evaluate the information in two case studies by presenting two reports of approximately 1000 words each.

Evidence must be generated using a sampling approach within each Outcome:

- Two out of four Knowledge and/or Skills items from Outcome 1
- Two out of three Knowledge and/or Skills items from Outcome 2
- Three out of five Knowledge and/or Skills items from Outcome 3

The assessment should be undertaken using open-book controlled conditions within a two hour working period.

# Higher National Unit Support Notes

## Unit title: Biomedical Pathology (SCQF level 8)

Unit Support Notes are offered as guidance and 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 within the HND Applied Biological Sciences Group Award framework. It investigates pathological factors relating to a variety of medical conditions.

### Outcome 1

**Physical malfunctions**

- broken rib (respiratory)
- bleeding (circulatory)

**Chemical malfunctions**

- drugs (anaemia, liver, respiratory)
- alcohol (liver)

**Biological malfunctions**

- infections (liver, respiratory, anaemia)
- blocked arteries (circulatory)

**Clinical nomenclature**

- demonstrate understanding of clinical nomenclature and use of correct language

### Outcome 2

**Cellular pathology**: injury to cells leading to disease, relate injury to cells to disease (fatty liver, oxygen deficiency leading to necrosis, Vitamin $B_{12}$ deficiency leading to abnormal red blood cell development).

**Biochemical pathology:** abnormal lipid metabolism leading to plaque formation, elastase activity leading to emphysema.

**Physiological pathology:** scarring in liver leading to portal hypertension and sequelea, blockage of arteries due to atherosclerosis leading to angina.

## Higher National Unit Support Notes (cont)

## Unit title: Biomedical Pathology (SCQF level 8)

### Outcome 3

**Signs and symptoms:** swollen ankles, breathlessness, fatigue, cyanosis.

**Biochemical results:** AST/ASP, liver function tests (LFTs), blood gas analysis.

**Haematology results:** albumin, antibody, blood sugar, cardiac enzymes, clotting time, Erythrocyte sedimentation rate (ESR), full blood count, lipids, platelet count, mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH).

**Physiological measurements:** lung function tests (forced expiratory volume (FEV) and other spirometry measurements), peak flow, pulse, blood pressure (BP), temperature.

**Histology results:** nuclear changes (karyolysis, karyortexis, piknosis), granular appearance, hyaline.

## Guidance on approaches to delivery of this Unit

This Unit forms part of the HND Applied Biological Sciences Group Award.

Laboratory experiments and data handling exercises/assessments should be carried out at appropriate times during each Outcome. Examples of these could include examining slides of RBC in different types of anaemia and of diseased/non-diseased states, physiological measurement of lung or circulatory function, data analysis on lactate dehydrogenase measurements in heart disease.

## Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Evidence for this Unit should be generated through holistic assessment undertaken in open-book supervised conditions of two hours duration. Learners will be assessed by responding to two case studies of approximately 1000 words each, with a 60% cut-off score for each case study. It is recommended that the case studies take the form of a ‘story’ of a patient’s history and the learner should be led through this case history by a series of questions. For example, the ‘story’ could be concerning a man in a car accident having difficulty breathing (blood gases/BP), pain in his side (x-ray to determine broken ribs/sternum), restrictive lung function, loss of blood (severed artery), circulatory shock, etc.

## Higher National Unit Support Notes (cont)

## Unit title: Biomedical Pathology (SCQF level 8)

Case studies should be contextualised and offer sufficient information to allow learners to present an informed solution using approved notes and texts. Questions attached to the case studies should ensure learners are able to display knowledge and understanding and draw conclusions in addition to extracting facts.

Different case studies using different samples will be used for reassessment.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

An exemplar instrument of assessment with marking guidelines has been produced to indicate the national standard of achievement at SCQF level 8.

## Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment**.

## Opportunities for developing Core and other essential skills

There may be opportunities to gather evidence toward the Core Skills of *Communication* and *Problem Solving* at Higher level in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

## History of changes to Unit

| Version | Description of change | Date |
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## General information for learners

## Unit title: Biomedical Pathology (SCQF level 8)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This is a one credit HN Unit at SCQF level 8. This Unit consists of three Outcomes and is assessed by means of a holistic assessment under supervised open-book conditions, involving two case studies.

**Outcome 1** — describes body malfunctions in a variety of anaemias, cardiovascular and respiratory disorders and liver diseases by studying physical, chemical and biological malfunctions. You will also learn and use rules for clinical nomenclature.

**Outcome 2** — explains the causal networks in the above disease aetiologies by investigating cellular, biochemical and physiological pathology.

**Outcome 3** — evaluates biomedical information in terms of pathological status by analysing signs and symptoms of disease, biochemical and haematology results, physiological measurements and histology results.