



Higher National Unit specification

General information for centres

Unit title: Biomedical Pathology

Unit code: DN35 35

Unit purpose: This Unit is designed to enable candidates to investigate pathological factors relating to a variety of medical conditions. It is a specialised Unit designed for students working towards an HND in Biomedical Sciences.

On completion of the Unit the candidate should 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 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8*)

**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 is at the discretion of the centre. However, it is recommended that candidates should have achieved the SCQF level 8 HN Unit: Human Body Structure and Function, (DG71 35) or equivalent.

Core 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.

Context for delivery: This Unit is included as a mandatory Unit within the framework of the Group Award, HND Biomedical Sciences. 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 particular Group Award to which it contributes.

Assessment: ~~This unit lends itself to holistic assessment.~~ Evidence for this Unit should be generated through holistic assessment undertaken in open-book supervised controlled conditions. Candidates will be assessed by responding to two case studies of approximately 1000 words each, with a 60% cut off score for each case study.

Higher National Unit specification: statement of standards

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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

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

Evidence Requirements for the Unit

Candidates 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. There will be a cut-off score of 60%.

Assessment Guidelines for the Unit

This Unit should be assessed by two case studies undertaken in supervised, open-book conditions of two hours duration with a cut-off score of 60%, ~~(12/20 marks for each case study is recommended).~~

It is recommended that the case studies take the form of patient histories with associated questions. They should be contextualised and offer sufficient information to allow candidates to present an informed solution using approved notes and texts. Questions attached to the case studies should ensure candidates 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.

Administrative Information

Unit code: DN35 35
Unit title: Biomedical Pathology
Superclass category: PB
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History of changes:

Version	Description of change	Date
02	Changes made to standardise assessment guidelines.	03/06/09

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Higher National Unit specification: support notes

Unit title: Biomedical Pathology

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 mandatory within the HND Biomedical 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 B₁₂ 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 sequelae, blockage of arteries due to atherosclerosis leading to angina.

Outcome 3

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

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

Higher National Unit specification: support notes (cont)

Unit title: Biomedical Pathology

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 the delivery and assessment of this Unit

Opportunities for developing Core Skills

This Unit forms part of the mandatory section in the Group Award, HND Biomedical Sciences.

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.

Useful websites include:

Virtual Slidebox: <http://www.path.uiowa.edu/vitualslidebox/> using the links 'search the database', 'comparative search tool' and human pathology atlas'.

Pathology Case Analysis: http://www.path.uiowa.edu/cgi-bin-pub/vs/case_analysis/ca_menu.cgi which contains case studies based on slides.

The ~~end-of-unit~~ holistic open-book supervised assessment, in the form of two case studies, should be given on completion of all Outcomes.

The case studies should take the form of a 'story' of a patient's history and the candidate 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.

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.

A combination of new and traditional authentication tools may have to be devised for assessment and reassessment purposes.

Higher National Unit specification: support notes (cont)

Unit title: Biomedical Pathology

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

General information for candidates

Unit title: Biomedical Pathology

This is a one credit HN Unit at SCQF level 8. This Unit consists of three Outcomes and is assessed by means of ~~an end of unit~~ 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.