



Higher National Unit specification: general information

Unit title: Physiology for Care Professionals

Unit code: FN2A 34

Superclass: RH

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Unit purpose

This Unit is intended to provide the candidate with an introduction to the anatomy and physiology of the human body. The candidate will be able to use this knowledge in their everyday life and work. It is also designed to allow candidate progression to Higher Education. This Unit is mandatory in the HNC/HND Care and Administrative Practice but can also be studied as a free-standing Unit.

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

- 1 Explain the levels of organisation and body processes essential to maintain health and well being.
- 2 Explain the structure and function of selected body systems.
- 3 Investigate the categories of disease and explain predisposing causes of disease.

Recommended prior knowledge and skills

Candidates should have good communication skills, both written and oral. These can be evidenced either by the achievement of nationally recognised qualifications for example Higher English or a qualification equivalent to SCQF level 6 or by the completion of a pre-course interview part of which could take the form of a written assignment. The skills to undertake this Unit could also be demonstrated through an employer's reference or the process of application and interview. In addition to this candidates should preferably have undertaken some work experience, paid or voluntary, in a health care setting.

General information (cont)

Credit points and level

2 Higher National Unit credits at SCQF level 7: (16 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.*

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes of 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.

This Unit is included in the framework for HNC in Care and Administrative Practice. It should be taught alongside the Essential Skills for Care Practice and could allow candidates the opportunity to study specific diseases in LO3 in greater depth using the skills and knowledge required to calculate, interpret and record numerical data.

Assessment

The assessment for this Unit could be either by **multiple-choice** and/or by **restricted** response questions. There could be two instruments of assessment addressing Outcomes 1 and 2. Alternatively a case study could be used to give a holistic approach integrating all Outcomes.

Assessment for Outcome 2 should comprise of a maximum of four body systems.

Outcome 3 can assess the candidate further on the same selected body systems or alternatively choose other disorders/diseases affecting other systems.

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

Explain the levels of organisation and body processes essential to maintain health and well being.

Knowledge and/or Skills

- ◆ Overview of the levels of organisation from chemicals to the body as a whole
- ◆ The importance of fluid balance and its importance in health
- ◆ The movement of substances across the plasma membrane including diffusion, osmosis, filtration and active transport
- ◆ The importance of homeostasis

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ understand the levels of organisation from simple levels, ie chemicals to living cells, tissues, organs and systems
- ◆ explain the importance of fluid balance and understand the movement of substances across the cell membrane, passive and active movement
- ◆ understand and explain the importance of homeostasis and the homeostatic monitoring feedback mechanisms to the process of wellbeing.

Assessment Guidelines

If this is taught as part of the HNC/HND Care and Administrative Practice Group Award it is highly desirable that the assessments should be integrated with other Units sharing common themes, eg *Essential Skills for Care Practice*.

Higher National Unit specification: statement of standards (cont)

Unit title: Physiology for Care Professionals

Outcome 2

Explain the structure and function of selected body systems.

Knowledge and/or Skills

- ◆ Structure and function of the cardiovascular system
- ◆ Structure and function of the respiratory system
- ◆ Structure and function of the digestive system
- ◆ Structure and function of the excretory system
- ◆ Structure and function of the endocrine system
- ◆ Structure and function of the nervous system
- ◆ Structure and function of the musculo-skeletal system
- ◆ Structure and function of the integumentary system
- ◆ Structure and function of the immune system
- ◆ Structure and function of the male and female reproductive systems

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ identify the structure and explain the functions of four of the above named systems.

Assessment Guidelines

This assessment can be combined with other Outcomes and can be either/or multiple-choice, matching or restricted response.

Higher National Unit specification: statement of standards (cont)

Unit title: Physiology for Care Professionals

Outcome 3

Investigate the categories of disease and explain predisposing causes of disease.

Knowledge and/or Skills

- ◆ Categories of diseases, infection, degenerative diseases, nutritional disorders, metabolic disorders, immune disorders, neoplasms and psychiatric disorders
- ◆ Predisposing factors, age, sex, heredity, lifestyle, physical and chemical damage, mental health and pre-existing illness

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ understand the different categories of disease using the appropriate disease terminology
- ◆ identify and explain one disease and further explain the possible predisposing factors associated with the disease.

Assessment Guidelines

The assessment can be combined with other Outcomes and can be assessed by multiple-choice, restricted response or matching exercise. The assessment can also be assessed using a case study particularly when the candidate is expected to identify a particular disease. This could be an opportunity to continue to assess candidate knowledge of a chosen body system in LO2.

This Outcome could also be delivered alongside a number of other relevant Units such as *Health Promotion and Essential Skills for Clinical Care Practice*.

Higher National Unit specification: support notes

Unit title: Physiology for Care Professionals

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 80 hours.

Guidance on the content and context for this Unit

This Unit is a mandatory clinical route Unit in the Group Award HNC in Care and Administrative Practice. The Unit is designed to be delivered in 80 hours. It is primarily intended to help candidates working in a care setting to contribute to the care of people by providing the appropriate underpinning anatomical knowledge essential for care support and also to access HE degree level care related courses such as BSc (Honours) Health Studies.

It is essential that candidates are aware that they need to achieve all Evidence Requirements for the award.

This Unit requires many candidates to learn new processes and unfamiliar language. Additional support and learner-centred quizzes/guidance should be built into the whole package regardless of whether it is a stand-alone Unit or part of the Group Award.

Outcomes could be taught and assessed in an integrated manner to ensure that candidates are given the opportunity to demonstrate a holistic approach to care and depth of understanding of the human body.

Outcome 1

Explain the levels of organisation and body processes essential to maintain health and wellbeing.

Candidates should be able to explain how living matter begins with simple chemicals formed into substances that make up cells, the basic units of life.

Specialised groups of cells form tissues and tissue function together as organs. Organs functioning together for the same general purpose make up organ systems. The organ systems work together to maintain the body. This is essential particularly for candidates who have not studied the human body prior to this Unit.

The importance of the role of fluid balance and distribution of fluid in the human body. The amount and composition of fluids must be regulated at all times. The extracellular and intracellular fluids should be explained. This is essential in terms of understanding homeostasis and ultimately fluid movement through cellular membranes.

The movement of substances across the plasma membrane is essential for candidate understanding of the human body. The description and understanding of a semi-permeable membrane is important, how water molecules are always able to penetrate with ease, however, some particles, eg proteins, are too large to pass through.

Higher National Unit specification: support notes (cont)

Unit title: Physiology for Care Professionals

The physical processes responsible should be grouped:

- (a) require no cellular energy and
- (b) **require** cellular energy.
- (c) diffusion — constant movement of molecules from a region of relatively higher concentration to one of lower concentration.

Osmosis — the diffusion of water through a semi-permeable membrane. They move from a more dilute solution to a more concentrated solution. The tendency for a solution to draw water into it is called the osmotic pressure of the solution.

Filtration — passage of water containing dissolved materials through the membrane as a result of mechanical (pushing) force on one side. For example movement of materials out of the capillaries under the force of blood pressure. These are described as passive. They do not require cellular energy.

Active Transport — molecules move in a direction opposite to the way they would normally flow by diffusion. It is against the natural flow, requires energy in the form of ATP. It also requires proteins in the cell membrane that act as transporters for the molecules.

Phagocytosis — the engulfing of relatively large particles by the cell membrane and moving them into the cell.

Pinocytosis — droplets of fluid engulfed by the cell membrane. Large protein molecules can travel into the cell, (means 'cell drinking').

Homeostasis – maintain a state of balance within the human body, eg body temperature, composition of body fluids, heart rate, respiration rate and blood pressure must be kept within set limits to maintain good health.

The importance of the negative feedback mechanisms monitoring the body's internal conditions and emphasis on the main regulating systems, eg nervous and endocrine. Some understanding of the positive feedback mechanisms and how they relate to the principles of homeostasis.

Higher National Unit specification: support notes (cont)

Unit title: Physiology for Care Professionals

Outcome 2

Looks at ten body systems, many deliverers of health related programmes would focus on the more high profile systems such as the cardiovascular, respiratory and perhaps digestive systems. Some may allow the students to choose which systems they want to be assessed on or to focus on systems which are most relevant to their future plans. However, all systems must be taught regardless of progression or employment. The candidate is expected to have a knowledge and understanding of the structures and functions of each system and will be assessed on a minimum of four systems,

Tutors should be aware that this is a single Outcome and the design of the award allows for only 80 hours. This is challenging for both students and tutors. Every effort should be made to use a variety of teaching methods to stimulate and promote independent learning in addition to taught hours.

Outcome 3

The candidate has studied the healthy human body throughout Outcomes 1 and 2.

This Outcome requires the candidate to further investigate and understand disease. Categories of disease could cover the following:

- ◆ Infection, disease producing organisms
- ◆ Degenerative diseases, disorders that involve degeneration, (breaking down), of tissues in any system. For, eg Muscular Dystrophy, Alzheimers, osteoporosis etc.
- ◆ Nutritional disorders, dietary lack of essential vitamins, proteins and minerals and obesity. Lack of dietary essentials can lead to scurvy, anorexia, rickets.
- ◆ Metabolic Disorders, diabetes, gout, digestive disorders and hereditary dysfunctions.
- ◆ Immune disorders, HIV/AIDS, allergies
- ◆ Neoplasms, means 'new growth' and refers to cancers and other types of tumour.
- ◆ Predisposing causes, age, sex, heredity, lifestyle, mental health, physical and chemical damage.
- ◆ Predisposing causes:
 - Age, tissue degeneration, general wear and tear. Incidence of disease, eg whooping cough and osteoporosis
 - Sex, eg some diseases are more likely to be gender based, eg early heart disease in men and diabetes in women. Other diseases can be highlighted which are changing previously identified trends, eg lung cancers increasing in women.
 - Heredity, eg inherited diseases, certain cancers and many allergies.
 - Lifestyle, good diet, physical activity, smoking, alcohol and drug usage. Hygiene and poor living conditions.
 - Physical and chemical damage, eg occupational diseases, associated with professions such as mining, possible damage to respiratory and cardiac diseases
 - Accidents causing burns, fractures and crushing injuries.
 - Air pollution and environmental causes including pesticides etc.
 - Pre-existing illnesses, eg diabetes and hypertension.
 - Mental health, eg stress and anxiety.

Higher National Unit specification: support notes (cont)

Unit title: Physiology for Care Professionals

Opportunities for the use of 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 e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

There are opportunities to develop the Core Skills of *Communication* at SCQF level 5 and *Numeracy* at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Communication: will be evidenced via the candidates' work with individuals and groups. Group discussions are particularly important.

Numeracy: will be evidenced through the candidates' ability to carry out numerical calculations with regard to homeostasis.

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.

History of changes to Unit

Version	Description of change	Date

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General information for candidates

Unit title: Physiology for Care Professionals

This Unit will enable you to demonstrate a knowledge and understanding of the normal functioning of the human body and its systems. Physiology deals with the ways that various systems of the body work to produce the activities of living.

There are three Outcomes, all of them requiring independent study in addition to the taught classes.

In Outcome 1 the emphasis is on how the body is organised and how water and other substances are distributed and controlled. You will be introduced to, for some, new concepts and language associated with the body. It is essential for you to grasp the knowledge and understanding at Outcome 1 to progress onto the other Outcomes.

Outcome 2 will cover the structures and functions of all body systems. You will be assessed on four of these systems.

Outcome 3 gives you the opportunity to further study the body in terms of the disease process and to further explain a particular disease/disorder in detail. This is a challenging Unit but one which will provide essential underpinning knowledge for candidates hoping to progress onto degree level study or for use in their workplace/life.