



Higher National Unit specification: general information

Unit title: Veterinary Nursing: Laboratory Techniques

Unit code: H0YT 35

Superclass: SN

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Unit purpose

This Unit is designed to develop a knowledge and understanding of endoparasites, ectoparasites and micro-organisms and the routine diagnostic techniques used to investigate them. The Unit will enable the candidate to develop the ability to perform routine diagnostic techniques using a range of suitable equipment, while observing relevant health and safety procedures. The candidate will also be able to analyse results and communicate these to relevant people. This Unit is suitable for candidates seeking employment in veterinary nursing or similar professions.

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

- 1 Identify and describe the characteristics and effects on animals of a range of common micro-organisms and parasites.
- 2 Explain how to prepare animals and collect samples for diagnostic tests.
- 3 Explain the theory and practice associated with the processing of a range of diagnostic samples.
- 4 Analyse a range of samples using appropriate equipment and techniques.

Recommended prior knowledge and skills

Candidates should have achieved passes in relevant level 7 Units in the HND Veterinary Nursing framework, or equivalent. Achievement of the level 7 Units *Veterinary Nursing Canine and Feline Anatomy and Physiology* and *Exotic Animal Healthcare Studies* would be particularly beneficial. Prior experience of working in a laboratory environment would be an advantage. Candidates should also have good communication skills.

General information (cont)

Credit points and level

1 Higher National Unit 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.*

Core Skills

There are opportunities to develop the Core Skills of *Problem Solving* and *Working with Others* at level 5 and the Oral component of *Communication* at level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

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. It is included in the framework of the HND in Veterinary Nursing.

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

Identify and describe the characteristics and effects on animals of a range of common micro-organisms and parasites.

Knowledge and/or Skills

- ◆ Common ectoparasites and endoparasites.
- ◆ Clinical signs exhibited by the animal.
- ◆ Implications of zoonotic species.
- ◆ The role of parasites in the transfer of diseases.
- ◆ Representative viruses, bacteria, protozoa and fungi.
- ◆ Structure, size and appearance of representative micro-organisms.
- ◆ Modes of reproduction.
- ◆ Classification of bacteria according to shape and Gram stain.
- ◆ Effects of toxins.

Evidence Requirements

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

- ◆ identify two common ectoparasites and two common endoparasites
- ◆ recognise clinical symptoms associated with two parasites
- ◆ describe the implications of one zoonotic species
- ◆ explain the roles of two parasites in disease transfer
- ◆ describe the structure, size and appearance of two species from the following four categories: viruses, bacteria, protozoa and fungi (yeasts/moulds)
- ◆ classify two species of bacteria according to shape and Gram stain
- ◆ explain how micro-organisms reproduce.

Higher National Unit specification: statement of standards (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Outcome 2

Explain how to prepare animals and collect samples for diagnostic tests.

Knowledge and/or Skills

- ◆ Patient preparation
 - Diet
 - Fluids
 - Exercise
 - Pre-test fasting
 - Restraint of patient
 - Positioning of patient
 - Sample site preparation
 - Patient monitoring
- ◆ Special sampling techniques
 - Cerebro-spinal fluid
 - Fine needle aspirates
 - Synovial fluid
 - Equine tracheal wash
 - Routine sampling techniques
 - Urine
 - Faeces
 - Blood
 - Skin/hair
 - Body secretions/fluids
 - Tissue
- ◆ Equipment for sample collection from the patient.
- ◆ Appropriate sample collection receptacles.
- ◆ Health and Safety, including infection control.

Evidence Requirements

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

- ◆ explain patient preparation and collection techniques for two routine samples and two special samples

Higher National Unit specification: statement of standards (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Outcome 3

Explain the theory and practice associated with the processing of a range of diagnostic samples.

Knowledge and/or Skills

- ◆ Haematology.
- ◆ Biochemistry.
- ◆ Urinalysis.
- ◆ Faecal examination (to include equine).
- ◆ Skin and hair examination (dermatology).
- ◆ Histology.
- ◆ Toxicology.
- ◆ Bacteriology.
- ◆ Other body fluids (cerebrospinal fluid, synovial fluid, fine needle aspirates, thoracic and abdominal fluids).
- ◆ Reproductive swabbing.
- ◆ Microscopy.
- ◆ Rationales behind performing the techniques.
- ◆ Normal parameters associated with the techniques.
- ◆ Conditions associated with elevated or depressed results.

Evidence Requirements

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

- ◆ explain the theory and practice associated with one haematological technique
- ◆ evaluate the significance of two biochemical parameters, eg glucose and urea.
- ◆ explain the theory and practice of any two other techniques

Higher National Unit specification: statement of standards (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Outcome 4

Analyse a range of samples using appropriate equipment and techniques.

Knowledge and/or Skills

- ◆ Observing relevant health and safety legislation.
- ◆ Sampling equipment and procedures including operation and maintenance of equipment.
- ◆ Importance of sample quality and the effect it has on results.
- ◆ Preservation and storage of samples prior to analysis.
- ◆ Labelling of samples.
- ◆ Dispatch and safe transport of samples.
- ◆ Haematology.
- ◆ Biochemistry.
- ◆ Urinalysis.
- ◆ Faecal examination.
- ◆ Skin and hair examination.
- ◆ Bacteriology.
- ◆ Commercial test kits.
- ◆ Recording, analysing and evaluating results.
- ◆ Communicating results to relevant personnel.
- ◆ Disposal of pathological material and reagents.

Evidence Requirements

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

- ◆ perform two out of the following six practical tasks in controlled conditions:
 - prepare a urine sediment and identify a urolith
 - prepare a blood smear, comment on quality and stain prepared smear.
 - prepare sample and equipment for packed cell volume
 - set up microscope and locate parasite using vernier scales; identify the parasite by common name
 - select and prepare equipment for a blood sample collection and demonstrate the hand hygiene technique
 - measure urine specific gravity using a refractometer and perform a dipstick test
- ◆ dispose of materials and reagents according to accepted procedures
- ◆ record, analyse, evaluate and communicate the results of two practical tasks to relevant personnel

NB: Only one urine task should be used in each assessment opportunity.

Higher National Unit specification: support notes

Unit title: Veterinary Nursing: Laboratory Techniques

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

Although this Unit may be taken by candidates in employment wishing to develop and/or enhance their skills, it is primarily intended for candidates who are studying towards the HND in Veterinary Nursing and the teaching and learning should be delivered in this context.

The Unit is specifically related to the routines and procedures undertaken within a veterinary practice laboratory. The delivery of Outcome 4 should take place in a laboratory environment.

Health and safety legislation should be referred to throughout this Unit and must be current at the time of delivery. This includes, (but is not limited to) the following:

- ◆ Health and Safety at Work Act (1974)
- ◆ Control of Substances Hazardous to Health (COSHH) Regulations (2002)
- ◆ The Waste (Scotland) Regulations 2005
- ◆ Control of Pollution (Special Waste) Regulations (1988)
- ◆ Collection and Disposal of Waste Regulations 1988
- ◆ Environmental Protection Act (1990)
- ◆ Reporting of Diseases and Dangerous Occurrences Register (RIDDOR) (1995)
- ◆ First Aid at Work

Additional information relating to each Outcome is given below.

Outcome 1

Candidates should learn how to identify common ectoparasites and endoparasites affecting companion animals. However, life cycle delivery should be restricted to those species that are deemed to be particularly significant, eg *Ctenocephalides*, *Toxocara canis*, *Dipylidium caninum*, *Toxoplasma gondii*. Candidates should be given, or should be helped to find, information on the mode of infestation, the role of the host and the effect the parasite has on the host species. Candidates should also have a clear knowledge about which species are zoonotic and the risks posed to animal owners and practice staff.

This Outcome is also an introduction to the field of microbiology and the significance of micro-organisms to veterinary nursing. Candidates should be able to use the knowledge gained in this Outcome to enhance their understanding of other aspects of the course.

Particular emphasis should be placed on the study of bacteria. This should be linked to Outcome 4 where students carry out related practical work (making a fixed smear, staining it and classifying the stained bacteria). Candidates should also be made aware of the role of fungi in veterinary practice: instruction should relate this to fungi that commonly affect cats and dogs and cause conditions such as ringworm and malassezia.

Higher National Unit specification: support notes (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Outcome 2

Outcome 2 focuses on patient preparation and sample collection. The care and welfare of the patient must be considered at all times. Candidates should be instructed in the selection of the most appropriate equipment for the sample to be collected. The importance of collecting samples in an aseptic manner should be emphasised. Candidates should know how to advise animal owners on the best technique for sample collection and storage.

Outcome 3

Outcome 3 is designed to introduce candidates to the theory and practice involved in the processing and analysis of a range of samples. Outcomes 2, 3 and 4 are closely linked, as candidates will have to use the knowledge gained in Outcomes 2 and 3 in order to correctly perform the tasks required in Outcome 4. Candidates must gain a clear understanding of the role of these diagnostic techniques in patient care.

Outcome 4

Outcome 4 is a practical reflection of Outcomes 2 and 3. Where possible, candidates should practise the collection of naturally occurring samples, such as urine and hair brushings, and should be shown how to make a gross evaluation of samples of urine and faeces. Evaluation of blood samples is particularly important and candidates should understand the significance of haemolysed, lipaemic and icteric samples.

Consideration should be given to preservation techniques for all samples, and particular emphasis should be placed on the preservation of tissues for histology and the temporary storage of samples in-house prior to examination. The importance of the dispatch of samples according to current postal regulations and according to the requirements of the external laboratory to which the sample is being sent should be made clear.

Delivery of this Outcome should relate to performing routine analyses of a range of samples. Emphasis should be placed on the importance of health and safety at all times. Candidates should become confident in the use of microscopes, centrifuges and electronic analysers. In addition, candidates should gain experience in the use of commercial test kits, such as those for FeLV. The emphasis should be on samples that relate to cats, dogs and horses.

Candidates should be guided to a good understanding of:

- ◆ why selected tests are being performed
- ◆ what are the normal parameters
- ◆ the significance of elevated or depressed results
- ◆ links to disease states or conditions that they have studied elsewhere in the Unit or in other Units.

It should be emphasised that although candidates are expected to evaluate the results of analyses, they are **not** in a position to diagnose any conditions. They must, however, be able to inform the veterinary surgeon of the results so that the correct diagnoses can be made. Candidates should also be instructed in recording and communicating results received from external laboratories.

Higher National Unit specification: support notes (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Guidance on the delivery of this Unit

This Unit has been devised with the intention that it forms part of the core framework of an HND in Veterinary Nursing and should be delivered with that in mind.

In respect of the HND in Veterinary Nursing, this Unit should, ideally, be delivered at the same time as the Unit covering veterinary health conditions so that candidates have a clear understanding of how these techniques relate to specific conditions affecting animals. Candidates should also have knowledge of Health and Safety prior to starting this Unit.

It is envisaged that most of the delivery of this Unit will be a combination of classroom-based lectures and practical sessions. Candidates may also benefit from visits to external veterinary laboratories, eg SAC or IDEXX. Outcomes 1–3 could be delivered in a classroom setting, but Outcome 4 should be delivered in a laboratory environment.

The Knowledge and Skills gained from this Unit are transferable and candidates may use these skills in other Units.

Guidance on the assessment of this Unit

Centres should feel free to adopt an appropriate assessment strategy provided that it meets the specifications given in the Statement of Standards for this Unit.

Outcomes 1, 2 and 3 could be assessed jointly by written tests. Outcome 4 is a practical assessment.

Assessment Guidelines

Outcome 1

The assessment of this Outcome can be combined with Outcomes 2 and 3, details of which are given under Outcome 3.

Outcome 2

The assessment of this Outcome can be combined with Outcomes 1 and 3, details of which are given under Outcome 3.

Outcome 3

The assessment of this Outcome can be combined with Outcomes 1 and 2. This could be conducted as an holistic written assessment consisting of structured questions undertaken in controlled conditions and lasting one and a half hours.

Outcome 4

Performance evidence for the practical tasks could be generated in supervised conditions during practical sessions. Observation checklists could be used to record performance and should be retained for authentication purposes.

Higher National Unit specification: support notes (cont)

Unit title: Veterinary Nursing: Laboratory Techniques

Online and Distance Learning

If this Unit is delivered by open or distance learning methods, additional resources will be required for candidate support, assessment and quality assurance. For further information and advice, please refer to the SQA guide: *Assessment and Quality Assurance for Open and Distance Learning* (www.sqa.org.uk).

Opportunities for developing Core Skills

There are opportunities to develop the Oral component of the *Communication* Core Skill at level 5 in this Unit through, for example, advising animal owners about techniques for sample collection and storage in Outcome 2 and liaising with the veterinary surgeon in Outcome 4. The Core Skills of *Problem Solving* and *Working with Others* could be developed in the course of performing the routine analyses in Outcome 4. Note that there is no automatic certification of these Core Skills and Core Skills components.

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: Veterinary Nursing: Laboratory Techniques

This Unit is included in the framework for the HND in Veterinary Nursing.

This Unit will provide you with knowledge of those ectoparasites, endoparasites and micro-organisms commonly encountered in veterinary nursing. You will also have the opportunity to become familiar with the theory underpinning a range of laboratory diagnostic techniques. This will allow you to perform these techniques to an acceptable standard and interpret the result obtained.

The Unit is organised into four Outcomes, covering the following topics:

- ◆ common micro-organisms and parasites
- ◆ preparing animals and equipment for sample collection
- ◆ theory and practice associated with diagnostic techniques
- ◆ performing routine diagnostic techniques.

Assessment for the Unit will consist of one holistic test taken in controlled conditions covering the theory aspects of the Unit (Outcomes 1–3). You will also be required to satisfactorily carry out two diagnostic technique practical tasks for Outcome 4.