



Higher National Unit specification: general information

Unit title: Animal Care: Diagnostic Techniques

Unit code: FA5D 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 the results. This Unit is suitable for candidates seeking employment in veterinary nursing, animal care or similar professions.

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

- 1 Identify and describe the characteristics, life cycles and methods of control for a range of common ectoparasites and endoparasites.
- 2 Describe common micro-organisms and explain their effects.
- 3 Explain the theory and practice of a range of diagnostic techniques.
- 4 Perform routine analyses of 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 Animal Care framework, or equivalent. Achievement of the Unit *Small Animal Anatomy and Physiology* would be particularly beneficial. Prior experience of working in a laboratory environment would be beneficial.

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 may be opportunities to gather evidence towards Core Skills 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 Animal Care.

Assessment

Outcomes 1–3 of this Unit could be assessed holistically using a closed-book written assessment consisting of structured questions, including diagrams where appropriate.

Outcome 4 could be assessed using a portfolio of evidence generated by the during practical laboratory workshops. Performance evidence should be supported by a practical checklist confirming candidate competency.

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, life cycles and methods of control for a range of common ectoparasites and endoparasites.

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
- ◆ Treatment and control methods for a range of ectoparasites and endoparasites

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 advice that could be given relating to one parasite.

Assessment Guidelines

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

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques

Outcome 2

Describe common micro-organisms and explain their effects.

Knowledge and/or Skills

- ◆ Viruses, bacteria, algae, protozoa, fungi (yeasts/moulds)
- ◆ Structure, size and appearance of representative micro-organisms
- ◆ Modes of reproduction
- ◆ Classification of bacteria according to shape and Gram stain
- ◆ Effects of toxins
- ◆ Infection and how micro-organism cause disorders within the body
- ◆ Terms associated with disease states caused by micro-organisms

Evidence Requirements

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

- ◆ describe the structure, size and appearance of one species each of viruses, bacteria, algae, protozoa and fungi
- ◆ explain reproduction in one prokaryote and one eukaryote
- ◆ explain how two species of bacteria are classified according to shape and Gram stain
- ◆ explain the effects of one bacterial toxin
- ◆ describe the infection and disease caused by one micro-organism.

Assessment Guidelines

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

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques

Outcome 3

Explain the theory and practice of a range of diagnostic techniques.

Knowledge and/or Skills

- ◆ Haematology
- ◆ Biochemistry
- ◆ Urinalysis
- ◆ Faecal examination
- ◆ Skin and hair examination
- ◆ Histology
- ◆ Toxicology
- ◆ Bacteriology
- ◆ Other body fluids
- ◆ 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 a range of biochemical parameters, eg glucose, urea and creatinine
- ◆ explain the theory and practice of any two other techniques.

Assessment Guidelines

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 half hours.

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques

Outcome 4

Perform routine analyses of a range of samples, using appropriate equipment and techniques.

Knowledge and/or Skills

- ◆ Observing relevant health and safety legislation
- ◆ Sampling equipment and procedures
- ◆ Importance of sample quality and the effect it has on results
- ◆ Preservation of samples prior to analysis
- ◆ Regulations relating to dispatch and transport to an external laboratory
- ◆ Haematology
- ◆ Biochemistry
- ◆ Urinalysis
- ◆ Faecal examination
- ◆ Skin and hair examination
- ◆ Bacteriology
- ◆ Recording results
- ◆ Communicating results to other personnel

Evidence Requirements

Performance evidence and associated case reports for three different diagnostic techniques are required.

All performance evidence should be generated during supervised laboratory practical workshops. At least one of the case reports must be supported by a checklist completed through direct observation of the candidate confirming that they have completed all aspects correctly taking into account health and safety.

Case logs should include the following minimum information in order to demonstrate the candidate's understanding of all aspects of sample processing:

- ◆ animal details
- ◆ type of procedure and reasons for the test
- ◆ patient preparation prior to sample collection
- ◆ equipment preparation
- ◆ sample collection technique
- ◆ test procedure
- ◆ record of results

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques

Assessment Guidelines

Performance evidence should be supported by one direct observation checklist. Copies of the case reports and the checklist should be retained for authentication purposes.

Higher National Unit specification: support notes

Unit title: Animal Care: Diagnostic 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 Animal Care 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, however the content is relevant to all animal care professionals and pet owners as it promotes an understanding of disease conditions and has direct relevance to the Unit *Small Animal Health and Disease*.

It is strongly recommended that the delivery of Outcome 4 should take place in a practical setting utilising a variety of laboratory diagnostic equipment.

Health and safety legislation should be referred to throughout this Unit, and must be current at the time of delivery. At the time of writing this includes the following:

Health and Safety at Work Act (1974)
Control of Substances Hazardous to Health (COSHH) Regulations (2002)
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.

- 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 must gain a good knowledge and understanding of the correct procedures for the treatment and control of these parasites in order to be able to advise animal owners. Emphasis should be given to the fact that most practices have their own specific policy for advising clients and that this should be followed at all times. Candidates should also have a clear knowledge about which species are zoonotic and the risks posed to animal owners and practice staff.
- 2 This Outcome is an introduction to the field of microbiology and the significance of micro-organisms to veterinary nursing and animal care. Candidates should be able to use the knowledge gained in this Outcome to enhance their understanding of other aspects of the course.

Higher National Unit specification: support notes (cont)

Unit title: Animal Care: Diagnostic Techniques

Particular emphasis should be placed on the study of bacteria. This should be linked to Outcome 4 where candidates 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 animal care: instruction should relate this to fungi that commonly affect cats and dogs and cause conditions such as ringworm and malassezia.

- 3 Outcome 3 is designed to introduce candidates to the theory and practice involved in the collection and analysis of a range of samples, in the case of skin and hair examination this must cover a range of dermatological techniques and other body fluids should include cerebrospinal fluid, synovial fluid, thoracic and abdominal fluids. Outcome 3 and 4 are closely linked, as candidates will have to use the knowledge gained in Outcome 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 the treatment and control of animal disease.
- 4 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.

Where possible, candidates should practice 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. Note blood samples should not simply be collected for the purposes of student practicals, where possible centres should arrange with a local veterinary practice to use samples that have been collected for therapeutic reasons.

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 and centrifuges. 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 and dogs.

Candidates should be guided to a good understanding about:

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, such as Small Animal Health and Disease.

Higher National Unit specification: support notes (cont)

Unit title: Animal Care: Diagnostic Techniques

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.

Guidance on the delivery and assessment of this Unit

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

In respect to the HND in Animal Care, this Unit should, ideally, be delivered at the same time as or after the *Small Animal Health and Disease* Unit so that candidates have a clear understanding of how these techniques relate to specific conditions affecting animals.

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.

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.

Opportunities for developing Core Skills

There is no automatic certification of Core Skills or Core Skills components in this Unit, however there may be opportunities to develop the Core Skills of *Communication* and *Problem Solving* at SCQF level 6.

There may be opportunities to develop the Core Skill of Written Communication at SCQF level 6 through the completion of the assessment for Outcomes 1, 2 and 3.

There may also be opportunities to develop the Core Skill of *Problem Solving* at SCQF level 6, both Planning and Organising and Reviewing and Evaluating through the practical aspects of Outcome 4 which requires the candidate to perform analysis of a range of samples using appropriate equipment and techniques.

Open learning

If this Unit is delivered by open or distance learning methods, additional resources will be required for candidate support, assessment and quality assurance.

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: Animal Care: Diagnostic Techniques

This Unit will provide you with the knowledge and understanding of those ectoparasites, endoparasites and micro-organisms commonly encountered in animal care. 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 results obtained.

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

- 1 Ectoparasites and endoparasites.
- 2 Micro-organisms.
- 3 Diagnostic techniques.
- 4 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 three diagnostic techniques and complete associated case reports for Outcome 4.

This Unit is included in the framework for the HNC/HND in Animal Care.