B-Laboratory Animal Science.4
B-LAS.4
TITLE:
LABORATORY ANIMAL SCIENCE
CATEGORY AND VALUE: B - 10 CREDITS
NOTIONAL STUDY HOURS: 100

This module provides an introduction to key areas for laboratory animal veterinarians. In particular it will assist candidates to carry out the role of Named Veterinary Surgeon. Completion of this 10-credit B-Laboratory Animal Science module and the 5-credit B Clinical Key Skills module is required for all candidates who are aiming to achieve a designated certificate in Laboratory Animal Science. The aim of the module is to enable candidates to extend and consolidate the clinical knowledge and skills they will have gained at undergraduate level, so that they are able to provide professional advice and assistance in facilities undertaking research that involves the use of laboratory animals, or in facilities involved in breeding or holding laboratory animals.

LEARNING OUTCOMES
This module will enable the candidate to:
· Gain a basic understanding of key areas of laboratory animal science
· Understand the interactions between laboratory animals, their environment, and their use in research.
· Apply the information gained to advise on the housing, husbandry and use of laboratory animals.
· Be aware and advise on the legal and ethical requirements required for use of animals in research procedures in the UK and Europe.

ASSESSMENT STRATEGY FOR THIS MODULE

1. A diary maintained over a period of two months for those in full-time employment as NVS, and 6 months for those in part-time work**.** This should demonstrate regular contact with laboratory animals in a research facility or laboratory animal breeding establishment, and should document how the role of the NVS was fulfilled during this period. The diary should include problems encountered (*eg* diseases, welfare problems, problems with model development) and how they were managed, as well as time spent on other aspects of the NVS's role, *eg* training, advising on best practice, preventative medicine.

2. Two case reports, 2000 words each. These may comprise:

- investigation and/or management of a health or welfare or experimental design problem in a research facility,
- development of teaching or training of research staff,
- development and/or refinement of an animal model,
- development and/or refinements of anaesthetic or peri-operative care protocols,
- fear and distress minimisation strategies,

- development and/or refinement of environmental enrichment measures and potential impact on the science.

This list is not intended to be prescriptive, but aims to provide some guidance on suitable topics for case reports.

These submissions should be retained by the candidate and will be part of the submission of work for the final synoptic assessment for the full qualification.

MODULE CONTENT

Species to be studied: Greatest emphasis will be given to the most commonly used species (rodents and rabbits), but also non-human primates, fish, birds and those other species used in research including any invertebrates that may be included in future legislation.

Biology and Behaviour
Taxonomy, anatomy, physiology, recognition of normal behaviour and abnormal behaviour. Breeding systems, recording systems and interpretation of data. Use of behavioural and physiological data as welfare indicators.

Nutrition
What animals normally eat and what is offered in the laboratory. Presentation, processing and storage of diet and nutritional requirements. The concept of nutrition as an occasional source of enrichment

Housing, Husbandry and Management
Animal house design, ventilation, heating and lighting, cage construction, etc animal house management systems and record keeping. Impact of housing and husbandry systems on scientific outcome measures and fidelity of data. Barrenness, environmental enrichment and housing.

Genetics and Genetic Manipulation
General principle of practical genetics including genetic modification strategies and aims, definitions, nomenclature and genetic monitoring. (more detailed coverage of this topic will be provided in module C5)

Disease, Diagnosis and Control
General principles with emphasis on the common and important diseases. Concepts of rederivation and individually ventilated racks as methods of disease control (more detailed coverage of this topic will be provided in module C6).

Ethics
Use of animals, Three Rs, cost / benefit analysis, and moral agency. Sufficient depth to allow appreciation of Project licence system and general ethical concepts. Law Council of Europe Convention and the EU Directive, ASPA, COSHH, Protection of Animals Act (and new animal welfare bill), VSA, Codes of Practice, guidelines and other European and UK laws.

Anaesthesia and Euthanasia
Introduction to laboratory animal anaesthesia, Methods of humane killing and impact on animal welfare and scientific procedures (more detailed coverage of anaesthesia will be provided in module C3)

Analgesia
Introduction to the recognition, assessment, prevention and management of pain in laboratory animals. (more detailed coverage of this topic will be provided in module C3)

Surgery and common procedures
Introduction to experimental surgery in small animals (more detailed coverage will be provided in module C4)

Experimental Design
Introduction to research strategies that minimise pain, distress, and suffering, experimental design and statistics.