

## **C-LAS.1**

### **TITLE: LABORATORY ANIMAL SCIENCE**

### **ANAESTHESIA AND ANALGESIA OF LABORATORY ANIMALS**

### **CATEGORY AND VALUE: C - 10 CREDITS**

### **NOTIONAL STUDY HOURS: 100**

Candidates working towards the designated Certificate in Advanced Veterinary Practice (Laboratory Animal Science) will need to complete the following modules: A Professional Key Skills, B-Clinical Key Skills, B-Laboratory Animal Science and three out of a choice of four C-Laboratory Animal Science modules. Candidates may substitute one of the C-Laboratory Animal Science modules and replace it with one of the C Animal Welfare, Science and Ethics modules.

### **LEARNING OUTCOMES**

This module will enable the candidate to:

- Gain a sound understanding of the physiology and pharmacology relevant to anaesthesia and analgesia.
- Critically evaluate anaesthetic and analgesic practices in a research environment.
- Apply the information gained to advise on anaesthetic and analgesia in a research environment, and to modify their own application of these techniques.
- Recognise the legal and ethical requirement to provide high standards of anaesthesia, analgesia and peri-operative care to laboratory animals.

### **ASSESSMENT STRATEGY FOR THIS MODULE**

1. **EITHER** : A case book of 4 case exposures not exceeding 300 words each. These cases should demonstrate, for example, the candidate's involvement in developing or refining anaesthetic regimens for different species or in advising on programmes of post-operative care

**OR** : A case diary maintained over a 3 month period (not necessarily consecutive).

The case book/diary should document the candidate's experiences of anaesthesia, analgesia and peri-operative care, specifically addressing the challenges associated with anaesthesia and analgesia in laboratory species.

### **AND**

2. **EITHER**: ONE short communication-type reports (up to 2000 words) relating to topics covered in the module. The report should be formatted along the lines of a scientific paper, e.g.:
  - Introduction: background information, set stage for problem
  - Description of case/situation
  - Actions taken and outcome

- Discussion: analysis of case; alternative strategies that could have been adopted, comparison to similar cases/situations in literature

**AND**

A critical review of one publication in a refereed scientific publication relevant to the module content (approx 1500-2000 words).

**OR:** TWO short communication-type reports (up to 2000 words) relating to topics covered in the module (as above).

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 included: primarily rodents and rabbits, but also non-human primates, fish and birds (in a laboratory/research setting) and larger species where specific research orientated issues arise (primarily long term anaesthesia with less usual agents)

**Anaesthesia and perioperative care:**

- Anaesthesia and animal welfare – potential problem areas in a research environment
- Pharmacology of commonly used injectable and inhalational agents and their potential for interference with experimental procedures
- Anaesthetic techniques and equipment for use with small laboratory animals
- Physiological monitoring and intra-operative care, with particular focus on long term anaesthesia and small species (and neonates)
- Pharmacology, indications and issues associated with the use of less commonly used agents (e.g. alpha-chloralose, urethane)
- Peri-operative care, including acclimatisation and pre-operative preparations and post-operative supportive care.

**Analgesia**

- Ethical background to animal pain, neurobiology of pain
- Measures of pain and their interpretation
- Analgesic techniques and pharmacology of common analgesic drugs (Opioids, NSAIDs, Local anaesthetics, other agents, with particular emphasis on their use in a research environment and in laboratory species).
- Adverse effects of pain and analgesic drugs on scientific outcomes
- Selection of appropriate analgesic regimens for particular research protocols

Reference list and suggested reading

Laboratory Animal Anaesthesia Flecknell, P.A. (1996). 2nd Edition. Academic Press, London.

Pain Management in Animals. (2000) Flecknell, P.A. and Waterman-Pearson, A. (Eds).(2000). Harcourt Publishers

Lumb and Jones' Veterinary Anaesthesia and Analgesia, (2006) 4th edition, Tranquill, W,Thurman, J. and Grimm, K. (eds).