

## **C-LAS.2**

**TITLE:           LABORATORY ANIMAL SCIENCE  
                  ANIMAL MODELS, HUMANE END POINTS AND STUDY  
                  DESIGN.**

**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. Candidates are encouraged to spend some time at an establishment undertaking toxicology or pharmaceutical research.

### **LEARNING OUTCOMES**

This module will enable the candidate to:

- -Understand the general principles of what an animal model is and the limitations.
- Appreciate the use of common surgical and non surgical experimental procedures.
- Consider non animal alternatives.
- Understand and implement the concept of humane and refined end points.
- Understand and apply basic statistical methods.
- Appreciate the concept of experimental design.
- Appreciate the concepts behind toxicology and pharmaceutical research.

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

1. *A case book of 4 case exposures not exceeding 300 words each. These cases should demonstrate, for example, the candidate's involvement in establishing animal models, refining existing models, advising on humane end points and participation in experimental design.*
2. *Critical review of one publication in a refereed scientific publication relevant to the module content (approx 2000 words).*
3. *A comprehensive literature review of a topic relevant to the module content (no more than 3000 words). Examples may include a critical review of animal models of a specific disease/condition (e.g. models of diabetes, arthritis), review of imaging methods used in laboratory animals.*

*· 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**

- Animal models (induced, spontaneous, GM), their uses and limitations.
- The element of variation and the factors that influence scientific results.
- Common surgical procedures including imaging, expected adverse effects and their control.
- Common non surgical procedures including behavioural testing, expected adverse effects and their control.
- 3Rs. Refinement - The concept of 'humane end points' and application, cost / benefit and refinement of procedures.
- 3Rs. Replacement – Alternatives to and replacement of animal models.
- 3Rs. Reduction – Experimental design and statistics
- Toxicology / pharmaceutical research and development.