

<b>REF. NO.</b>	<b>C-VEPI.3</b>
<b>TITLE:</b>	<b>VETERINARY EPIDEMIOLOGY: QUANTITATIVE METHODS</b>
<b>CATEGORY AND VALUE:</b>	<b>C - 10 CREDITS</b>
<b>NOTIONAL STUDY HOURS:</b>	<b>100</b>

This module can be taken by candidates who are aiming to achieve the Certificate in Advanced Veterinary Practice (Veterinary Public Health). It can be also taken as a free standing module.

### **LEARNING OUTCOMES**

By the end of the module candidates will be able to:

1. Describe and apply the epidemiological approach to disease control and veterinary public health.
2. Select, apply and interpret appropriate measures of disease frequency.
3. Select, apply and interpret appropriate measures of association.
4. Describe the principles of the use of modelling in disease control.
5. Describe the different types of model used in disease control and recognise the differences between them.
6. Devise a simple model applied to a case study.
7. Apply basic statistical principles.
8. Describe and produce standard distributions and summary measures for data.
9. Apply the theory and probability in as far as it is relevant to veterinary public health.
10. Describe the use of p values and confidence intervals and explain the difference between them.
11. Apply two-sample tests and chi-square tests.
12. Summarise appropriate uses of logistic regression.
13. Interpret results of logistic regression analyses.
14. Apply the theory of quantitative risk assessment (QRA).
15. Recognise and describe the appropriate applications of the commonly used probability distributions in quantitative risk assessment.
16. Describe stochastic and deterministic methods.
17. Demonstrate ability in model framework construction.
18. Implement a basic risk assessment.
19. Describe the history and hazard analysis critical control point (HACCP) theory.
20. Describe how HACCP is implemented in veterinary public health.
21. Design a basic HACCP programme.
22. Apply HACCP principles in relevant sectors of the food industry.
23. Describe statistical process control (SPC) theory and the quality gurus.
24. Create and interpret C charts.
25. Create and interpret P charts.
26. Create and interpret Cusum charts.
27. Describe and apply the theory of diagnostic test assessment.
28. Calculate standard diagnostic test characteristics.
29. Describe the use of receiver-operating characteristic (ROC) curves in diagnostic test evaluation and interpret the results.
30. Describe the implementation of test issues in certification of freedom from disease.
31. Describe the use of geographical information systems (GIS) in disease control.

32. Describe the use of GIS in hybrid information systems.
33. Familiarity with the basic features of a GIS package.
34. Respond positively to feedback and constructive criticism from peers and course tutors.

### **ASSESSMENT STRATEGY**

Please refer to the general Guidance and Assessment for all Modules.

### **MODULE CONTENT**

- Epidemiological principles - the epidemiological approach and measuring disease
- Applied epidemiology - modelling for disease control
- Statistical principles - data and distributions; summary measures and probability
- Hypothesis testing
- P values and simple tests
- Risk Analysis - QRA; stochastic & deterministic; distribution
- Principles and implementation of HACCP
- SPC methods: C charts; P charts; cusum
- Diagnostic testing: sensitivity and specificity; predictive values; freedom from disease
- GIS: principles and application