



AUSVET

Veterinary Epidemiology Masterclass

Preliminary program

1–5 April 2019

Canberra (venue to be confirmed)

Preliminary program

This masterclass will be an exciting way to learn about veterinary epidemiology. We will use a variety of teaching approaches including lectures, scenarios, worked examples, group work and online tools (e.g. [EpiTools](#)). Within each topic, we will focus on key concepts and principles, and their practical application. For example, for the topic of outbreak investigation we will take the following approach:

1. Present a real-world (de-identified) example of a disease outbreak.
2. Work through the steps in an outbreak investigation including exploration of the spatial, temporal and animal patterns of disease.
3. Use the example to consolidate understanding about measures of association and relevant statistical tests.
4. Make inferences and suggest economical disease control steps.
5. Present the example as a typical ANZCVS membership examination question and discuss the components of an ideal answer.

You will have time to discuss challenging concepts and interact with our experienced tutors.

For attendees interested in sitting ANZCVS Veterinary Epidemiology membership exams, we will allocate time to practice written and oral exam questions.

A preliminary program is presented below, although this may be refined according to the interests and needs of masterclass participants.

Day 1: Monday 1 April

Time	Topic
13:00–15:00	Welcome and introduction What is Epidemiology? Where does it fit in relation to other disciplines? Important skills and tools for epidemiologists Disease transmission and ecology Modes of transmission and methods of spread Basic epidemic theory and reproduction number Herd immunity
15:00–15:20	Afternoon tea
15:20–17:00	Causation How do we determine if a factor is causal? Sufficient and necessary causes Causal criteria and the limitations of these criteria Causal diagrams

Day 2: Tuesday 2 April

Time	Topic
9:00–10:30	Measuring population health Proportions, ratios and rates Measures of disease frequency, association and effect Basic calculations and tools
10:30–10:50	Morning tea
10:50–12:30	Error in epidemiological studies: how might we get it wrong? Bias Confounding Interaction Random error
12:30–13:15	Lunch
13:15–15:00	Study designs: strengths, weaknesses and making the right choice Descriptive studies – prevalence surveys Observational studies – cross-sectional studies, case-control studies, cohort studies Intervention studies – randomised controlled trials
15:00–15:20	Afternoon tea
15:20–17:00	Sampling from populations Sampling methods Calculating sample size

Day 3: Wednesday 3 April

Time	Topic
9:00–10:30	Diagnostic tests Test performance – sensitivity, specificity, repeatability and reproducibility Apparent prevalence vs true prevalence Interpreting results at the individual animal level – positive and negative predictive values
10:30–10:50	Morning tea
10:50–12:30	Diagnostic tests (continued) Interpreting results at the herd or group level Choice of diagnostic test for different purposes and populations Diagnostic test validation
12:30–13:15	Lunch
13:15–15:00	Surveillance Why do we do surveillance? Types of surveillance Prevalence surveys
15:00–15:20	Afternoon tea
15:20–17:00	Surveillance (continued) Proof-of-freedom surveys Risk-based surveillance Farmer-reporting

Day 4: Thursday 4 April

Time	Topic
9:00–10:30	Disease outbreak investigations Steps in an outbreak investigation Patterns of disease – animal, temporal and spatial patterns
10:30–10:50	Morning tea
10:50–12:30	Disease eradication and control Control vs eradication Important epidemiological features for control Strategies for control and eradication Animal health programs
12:30–13:15	Lunch
13:15–15:00	Analysis of epidemiological data Principles of data collection and data management Types of data Descriptive analyses Hypothesis testing Statistical significance and power
15:00–15:20	Afternoon tea
15:20–17:00	Analysis of epidemiological data (continued) Common statistical tests Useful analytical tools Presenting and interpreting results of statistical analyses

Day 5: Friday 5 April

Time	Topic
9:00–10:30	Critical appraisal of epidemiological studies Principles of evidence-based medicine Approach to appraisal of an epidemiological study
10:30–10:50	Morning tea
10:50–11:45	Practice ANZCVS exam questions Work-through of example questions Mock oral exam
11:45–12:00	Wrap-up and goodbyes