

Veterinary Epidemiology and Molecular Epidemiology of Infectious Diseases

The health of animal or human populations can be threatened by new diseases such as pandemic swine flu or Schmallenberg virus as well as outbreaks of known diseases like Foot and Mouth Disease, West Nile or Bluetongue.

Global movements of people, goods and animals as well as climate change serve to increase these risks. Disease in animals affects their welfare and productivity and zoonotic animal diseases are a major public health concern.

Epidemiology is a key discipline that enables us to understand factors that are associated with disease occurrence. Therefore, an appreciation of the principles of epidemiology is essential to anyone working within the veterinary, public health, pharmaceutical, medical and life science professions.

COURSE DATES: 4 - 15 NOVEMBER 2013

This intensive short course will firstly, introduce the principles of epidemiology (**week 1 – 04.11.13 – 08.11.13**) and secondly, provide training on the application of molecular epidemiology to disease outbreak investigation and control (**week 2 - 11.11.13 – 15.11.13**).

The University of Surrey has assembled a team of experts in collaboration with **mEpiLab** (the Molecular Epidemiology and Public Health Laboratory within the Infectious Research Centre at Massey University, New Zealand) **Epi-interactive** (an international consultancy and training company) and **mEpiWorks** (an international working group for molecular epidemiology), the **Animal Health and Veterinary Laboratories Agency (AHVLA)** and **The Pirbright Institute** (formerly Institute for Animal Health) to deliver this comprehensive short course.

As an introductory offer the full 2-week course is available for £525. Depending on expertise and background participants can also enrol separately for week 1 or week 2 at £262.50 per week. Anyone who wishes to enrol for week 2 only should have some prior background knowledge in Epidemiology.

Please note that the price does not include catering. There are numerous catering facilities on the University of Surrey campus which provide a wide range of food and beverage services during break times.

For more information and to register please contact **Sarah Gould** on **01483 689889** or email: sarah.gould@surrey.ac.uk

COURSE DETAILS:

This two week short course is designed as two stand alone modules:

- 1) Introduction to Veterinary Epidemiology (week 1)
- 2) Molecular Epidemiology of Infectious Diseases (week 2)

WEEK 1: INTRODUCTION TO VETERINARY EPIDEMIOLOGY

This week will introduce Epidemiology as a discipline and explain the principles of epidemiological study design and interpretation. Specific areas will include:

- Measure of disease frequency
- Measures of association between risk factors and disease
- Disease causation and cause-effect relationships
- Epidemiological study design and interpretation
- Evaluation of diagnostic assays.

This module is divided into a series of lectures, practical sessions and group discussions.

Week 1 will be delivered in collaboration with Epidemiologists and Veterinary scientists from AHVLA and the Pirbright Institute.

WEEK 2: MOLECULAR EPIDEMIOLOGY OF INFECTIOUS DISEASES

This week will provide an overview of the application of molecular epidemiology in infectious disease investigations and research. Time will be taken to understand:

- The dangers of potentially drawing incorrect conclusions from datasets of genetic data
- The importance of designing molecular typing studies in accordance with epidemiological principles.
- The practical implementation of recent advances in techniques such as:
 - modelling the source of disease using typing data,
 - population structure and differentiation,
 - whole genome sequencing

This module will be delivered using lectures, group discussions, computer-based practical classes and participant presentations.

Week 2 will be delivered in collaboration with Epidemiologists from **mEpiLab** , **Epi-interactive** and **mEpiWorks**.

At the end of this short course participants will understand the vital role of Epidemiology in infectious disease investigation, prevention and control, be able to interpret and critically evaluate epidemiological data and take epidemiological questions into consideration for future study designs or policy decisions.