Control of Infectious Diseases in Animals

MSc and Postgraduate Diploma

MSc: Full-time course for one year
Postgraduate Diploma: Full-time course for seven months
Part-time MSc or Diploma courses over two or three years

The recent outbreaks of Avian Influenza Virus, Foot and Mouth disease, BSE and Swine Fever have highlighted the threat to human and animal health arising from endemic and emerging infectious diseases. The threat is complex, often unpredictable, and international. As well as the health aspects, there are huge economic implications.

The Control of Infectious Diseases in Animals (CIDA) course addresses control issues through an integrated programme in the biology, diagnosis, epidemiology, prevention and management of infectious disease in, or arising from, animal populations. The course focuses on the principles needed to effectively control endemic diseases and to respond rapidly and effectively to disease outbreaks, including emerging diseases. State-of-the-art methodologies applied in disease control are taught by internationally recognised experts.

The course is appropriate for those working in the state veterinary service and to anyone with an interest in disease control. As disease control is a multidisciplinary subject, we welcome people with different backgrounds. A significant component of the course consists of small group work, where students will be able to learn from each other.

Career prospects

Graduates from this course should be able to take up careers in government, teaching, research and other organisations where they will be involved in the implementation and management of disease control programmes.

Former students of this course have been enrolled in PhD studies at different universities worldwide. Within the UK, our graduates are employed by the Department for Environment, Food and Rural Affairs (DEFRA), and the Centre for Epidemiology and Risk Analysis at the Veterinary Laboratories Agency. Past graduates now work for the United Nations' World Health and Food and Agriculture Organisations. Further afield they are working for government departments in New Zealand, Thailand, Vietnam, Singapore, Spain, Bangladesh, Ethiopia, Croatia, Ireland, Switzerland, Pakistan, Iceland, Norway and France.

Entry requirements

Applicants should have a university honours degree (first or second class). Individuals with degrees in veterinary or biological science, statistics and relevant postgraduate experience, are all encouraged to apply. As we welcome a broad range of students, including policy-makers, other experience may be deemed appropriate. Potential students are encouraged to contact the course director if they are in any doubt.

Aims and objectives

The MSc aims to offer a sound foundation in the principles governing the prevention, management, and control of infectious diseases in animals and to equip students with the specialised skills required to assess risk, and implement appropriate control measures. On completion of the course students will be able to:

– demonstrate an understanding of the key concepts underpinning the control of infectious diseases in animals
– analyse and interpret microbiological, epidemiological and field data, and suggest further investigations
– evaluate the risks and relevant factors pertaining to specific disease outbreaks, and to formulate an appropriate control strategy
– communicate effectively with other relevant groups, such as those involved in human and animal health, governmental agencies, food producers, the media and the public
– review critically the published literature, and design and undertake a research project in a relevant field.

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Course content

The MSc course comprises:

– a taught component occupying two academic terms, comprising an introductory module and a further six modules. The six modules are each examined at the end of the module
– an individual research project of four months, carried out between May and early September for full-time students

The Postgraduate Diploma comprises:

– a taught component occupying two academic terms, comprising an introductory module and a further six modules. The six modules are each examined at the end of the module

Term One

The introductory module includes: an introduction to the scientific basis for disease control; fundamentals of epidemiology, immunology, vaccinology and molecular biology, veterinary law and generic skills. Modules one and two cover Bacterial and Parasitic Diseases and Viral and Prion diseases. Each looks at three to four selected diseases from a variety of different perspectives, including biology, pathogenesis, diagnosis, epidemiology and control. Further, an assessed statistics course starts in the introductory module and runs through terms one and two.

Term Two

Term two consists of four modules. Module three, Animal Health Economics, introduces students to the principles of economics as applied to animal health, and to the practical use of economic methods. No prior knowledge of economics is required. Module four, Preventing Infectious Diseases, teaches methods of preventing and reducing the risk of the spread of infectious disease, including the use of bio security measures, vaccines and import/export controls. Module five, Applied Risk Assessment and Management, covers modelling of infectious diseases and provides an opportunity for students to develop disease control strategies and conduct risk assessments for policy-relevant questions. Module six, Contingency Planning and Communication, addresses the development and implementation of contingency plans for dealing with disease outbreaks, and addresses the benefits of and approaches to communication with involved stakeholders.

The teaching strategy consists of interactive lectures, group work, directed learning sessions, practicals, and private study. All modules include an in-course assignment to integrate knowledge and to reflect on taught subjects.

Term Three (MSc only)

You will be asked to prepare a project proposal and a relevant literature review written in the form of a grant proposal. You will then spend the rest of the summer working on your project and writing it up as a report in the style of a scientific paper. The project is a scholarly endeavour in an appropriate area, involving collection and analysis of relevant new and pre-existing data. It may or may not involve laboratory work.

Assessment

Each taught module is assessed by an in-course assignment and/or a written open book examination. For the MSc, a comprehensive literature review on the topic of the project and a project report (in the style of a scientific paper) are produced and students are examined orally.

Duration of study

The course for full-time students runs for one calendar year (MSc) or seven months (Postgraduate Diploma), or part-time for two or three years. Although it is more straightforward to undertake the course in the order described above, we recognise that it is not possible for all people to take a year off full-time. We have therefore designed the course to be modular, with assessment within each module, allowing credit accumulation. It is recommended that students who wish to study part-time discuss their intended programme with the course directors.

Kennedy Mwakalimba
MSc CIDA 05

'I am currently working with swine and sheep farms, trying to control endemic disease like Swine Dysentery, Streptococcus Suis and respiratory disease of sheep. I am also teaching Veterinary Public Health and components of Veterinary Economics and Veterinary Epidemiology at the University of Zambia. I am a member of the Zambia Bureau of Standards Technical Committee on milk standards and I recently co-chaired a national consultative meeting on the harmonization of milk standards in the COMESA region (Common Market for East and Southern Africa). In research, I have been doing a retrospective rabies study and trying to do risk assessments for the presence of avian influenza in the poultry marketing chain, and also the presence of American Foul Brood in Apiaries in Zambia. There are a number of economic analyses of zoonotic diseases I am currently working on in collaboration with other researchers at the University of Zambia.'

Fernando Blanco Esporas
MSc CIDA 06

'I am now undertaking a PhD through the Royal Veterinary School at the University of Edinburgh. The majority of the practical work will take place at the Veterinary Laboratories Agency in Weybridge. The project, which is mainly laboratory based, involves the creation of a recombinant strain of Mycobacterium tuberculosis BCG'.

Peter Moore
MSc CIDA 07

'One of the great strengths of the course is that teaching is carried out by world experts in their field and their knowledge and passion is clear. The atmosphere created by the tutors and by the course structure inspires you to research each topic long after lectures are over.'

Mick Millar
MSc CIDA 08, studying part-time and working at the VLA

'The MSc CIDA course offered a steady platform to develop and enhance my understanding of the epidemiology, pathogenesis and control of infectious diseases of animals. World experts in the principal infectious diseases of farmed animals gave informative and up-to-date lectures on diseases as diverse as avian influenza, Rabies and Johnes disease in cattle. Economics, risk analysis, surveillance and other aspects of disease control in our rapidly changing world were part of the broad scope of this inspiring course.'