ANIMAL INFECTIOUS DISEASES - 2024/5

Module code: BMS3074

Module Overview

The purpose of this module is to provide students with a greater understanding of the scientific basis behind approaches to control animal infectious diseases that impact human health and safety. This involves detailed knowledge of the pathogen, its transmission routes, the host response to infection, realistic treatment and control measures, and its impact on other animals and/or the human population. As a FHEQ level 6 module, the students are expected to integrate and evaluate the importance of different types of information to generate an informed (and evidence-based) opinion about the problems or potential impacts of animal infectious diseases. The outcomes from this module closely align with those of the Degree Programme and enable the understanding of the concept of “One health” and the further study of “specific aspects of veterinary sciences and the[ir] interplay with human health.”

Module provider

School of Biosciences

Module Leader

SELEMETAS Nick (Biosciences)

Number of Credits: 15

ECTS Credits: 7.5

Framework: FHEQ Level 6

Module cap (Maximum number of students): N/A

Overall student workload

Independent Learning Hours: 106

Lecture Hours: 36

Tutorial Hours: 2

Laboratory Hours: 2

Guided Learning: 2

Captured Content: 2

Module Availability

Semester 2

Prerequisites / Co-requisites

BMS2037 Cellular Microbiology and Virology OR BMS2041 Food Microbiology AND BMS2045 Introduction to Immunology

Module content

Indicative content includes:

- Concept of Veterinary Public Health: Zoonotic infectious diseases
- Foodborne pathogens including Escherichia coli, Salmonellosis, Campylobacter, Listeria monocytogenes
- Gastrointestinal disease: causes and mechanisms for Bovine Viral Diarrhoea and Brachyspira hyodysenteriae
- Respiratory pathogens including Mycobacterium bovis, Infectious Bronchitis virus, Avian influenza, Bordetella bronchiseptica and Rhodococcus equi
- Pathogens affecting the skin and/or oral cavity including Foot-and- mouth disease virus and Bluetongue virus
- Pathogens affecting the reproductive tract including Leptospirosis, Chlamydophilia abortus & Toxoplasma gondii
- Neurological pathogens including Rabies and Transmissible spongiform encephalopathies (TSE)
- Other diseases: Classical swine fever (pestivirus), Porcine Reproductive and Respiratory Syndrome, Lyme disease
- Parasitic diseases important to public health including Echinococcus granulosus, Trichenella spiralis, Taenia spp., Giardia spp., Cryptosporidium spp, and Toxocara canis
- Microscopic examination of parasites
- Epidemiology of animal infectious diseases and hands-on Veterinary Epidemiology

Assessment pattern

Assessment type	Unit of assessment	Weighting
Coursework	REPORT OF CONFLICTING EVIDENCE OF PARASITIC DISEASES	30
Examination Online	2 HR ONLINE FINAL EXAM	70

Alternative Assessment

N/A

Assessment Strategy

The assessment strategy is designed to provide students with the opportunity to demonstrate:

their understanding of the complex issues faced by researchers, regulators and the public during animal infectious disease outbreaks.

The group formative presentation involves the students assimilating information about an allocated pathogen, how it causes disease, the routes of transmission, any control or treatment methods, and its potential impact on public health or the safety of food chain.

The summative assessment requires detailed understanding of a range of topics relevant to key animal pathogens and requires the students to present their thoughts in a logical and evidence-based manner.

Thus, the summative assessment for this module consists of:

· Report of conflicting evidence of parasitic diseases, 2000 words (addresses LOs 1, 2, 4, 7, 9, 10, 11, 12 and 13)

· Online final exam - Essay questions about bacterial and viral infectious diseases (addresses LOs 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12 and 13)

Formative assessment

All the lecturers on this module provide students with an opportunity to engage in a dialogue with them in order to assess their own understanding of the lecture material. The students are actively encouraged to make use of these opportunities by the Module leader and the lecturers of the module. Following the group formative presentation, feedback will be provided to be used in the report assessment. A more detailed and individual feedback is given to students on their reports of parasitic diseases. Much of this information assists students to reflect on their learning and their learning strategies and improve their performance and professional development.

Feedback

Students will receive verbal feedback on their group formative presentation. Extensive written feedback will be provided individually to students on their summative reports of parasitic diseases that will help them on how they approach learning and interact with the teaching material. Throughout the module and revision verbal feedback will be provided to students by lecturers based on their understanding of the teaching material. Finally, some generic feedback will be provided on the final exam questions to help students identify the strengths and weaknesses of their exam performance.

Module aims

- Provide an overview of animal infectious diseases of veterinary importance
- Analyse the epidemiology and importance of animal infectious diseases important to public health
- Provide an overview of control measures used to ensure public health and food safety in relation to animal infectious diseases

Learning outcomes

		Attributes Developed
001	Describe the main infectious agents of veterinary importance and their mechanisms of pathogenesis.	KC
002	Discuss how infectious agents of veterinary importance may be controlled and diagnosed	KC
003	Describe the infectious disease of animals that may be transmitted to humans (zoonoses)	K

		Attributes Developed
004	Understand host-pathogen interactions that lead to disease pathology for most important animal infectious diseases	KC
005	Understand how current legislation impacts public health and safety in relation to animal infectious diseases.	KC
007	Evaluate considerations relating to animal-specific anatomy	C
008	Evaluate considerations relating to animal handling	C
009	Work independently demonstrating initiative, self-organisation and time management	PT
010	Communicate effectively orally and in written work	PT
011	Participate in group discussions and on group assignments	PT
012	Investigate and analyse problems	CPT
013	Integrate numerical & non-numerical information	CPT
006	Analyse the epidemiology of animal infectious diseases	KC

Attributes Developed

C - Cognitive/analytical

K - Subject knowledge

T - Transferable skills

P - Professional/Practical skills

Methods of Teaching / Learning

The learning and teaching strategy is designed to:

Expose students to cutting-edge and topical issues faced by researchers working in animal infectious disease research and public health. This module uses research-active lecturers (both internal and external to the University), who not only are leading experts in their chosen field but also bring a 'hands-on' view of working within the practical and regulatory confines of the industry (taught classes). By keeping the lectures fairly informal, students have a chance to fully engage in a dialogue with the lecturers. The students will have an opportunity to assess and evaluate the potential risk posed by one key pathogen and present this work to their peers and University of Surrey lecturers (directed study).

Thus, on completion of this module, the students will have a detailed understanding of the problems and considerations faced by countries following an animal infectious disease outbreak.

Indicated Lecture Hours (which may also include seminars, tutorials, workshops and other contact time) are approximate and may include in-class tests where one or more of these are an assessment on the module. In-class tests are scheduled/organised separately to taught content and will be published on to student personal timetables, where they apply to taken modules, as soon as they are finalised by central administration. This will usually be after the initial publication of the teaching timetable for the relevant semester.

Reading list

https://readinglists.surrey.ac.uk
Upon accessing the reading list, please search for the module using the module code: BMS3074

Other information

Resourcefulness & resilience

Literature search using online databases and resources, e.g. textbooks, peer-reviewed journal papers

Flipped classroom seminars that allow students to measure their progress and understanding in preparation for exams

Global & cultural capabilities

Lectures delivered by a broad range of speakers with diverse backgrounds: UK or international speakers, veterinarians, animal scientists, and researchers

Lectures cover a wide range of infectious diseases worldwide and examples from various disciplines with impact across the 'OneHealth' sector.

Sustainability

Lectures in line with OneHealth approach towards food sustainability, sustainable agriculture and development

Digital capabilities

Use of various software for online interaction and review of content.

High content of digital external resources to support lectures

Employability

Lectures by professionals working at FSA, EFSA and APHA providing information to students about potential job opportunities

Module designed to meet employers' expectations towards self-learning ability, critical analysis, problem-solving skills

Programmes this module appears in

Programme	Semester	Classification	Qualifying conditions
Biological Sciences (Animal Biology and Ecology) BSc (Hons)	2	Optional	A weighted aggregate mark of 40% is required to pass the module
Microbiology BSc (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Veterinary Biosciences BSc (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module