LF127-15 Infection Biology and Microbiology

26/27

Department
Life Sciences
Level
Undergraduate Level 1
Module leader
Sophie Martucci
Credit value
15
Module duration
9 weeks
Assessment
100% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

Infectious agents come in many forms, including viruses, bacteria, yeasts and eukaryotic parasites. Infectious disease caused by this array of agents is all around us. Every type of cellular life form can be infected. Human disease clearly matters a lot to us, but infections of other species also have major impacts on human activity and well-being, such as when crops and livestock fall victim to infection. This module will introduce you to important aspects of the topic of infection, considering some of the agents themselves, and their interactions with host species.

Module web page

Module aims

This module introduces students to important aspects of the topic of infection, considering some of the agents themselves and their interactions with host species

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be

covered. Actual sessions held may differ.

Structure of bacterial pathogens: Diversity, growth, cell wall, cell membrane, endospores as survival mechanism, pili and fimbriae as attachment organelles, flagella and chemotaxis.
Virology: Virus structure, classification, replication, methods of virus cultivation and the single-step growth cycle, virus transmission, how viruses cause disease, and strategies for controlling infections through vaccination and antiviral therapies.
Immunology: Innate immune response; adaptive immune response, molecular structure of immunoglobulins.
Epidemiology: Modelling infectious disease; population biology; epidemic patterns of disease; endemic patterns of disease; disease control

Learning outcomes

By the end of the module, students should be able to:

- Describe viral structure and explain how structural features influence viral ability to cause disease.
- Explain the functions of key bacterial cell structures and discuss how these contribute to bacterial pathogenicity.
- Identify major bacterial diseases and outline the mechanisms by which they cause illness.
- Describe the main components of the host immune response and explain their role in controlling infection.
- Explain the basic mechanisms of disease transmission across individuals and populations.
- Outline how epidemiological theory is used to interpret patterns of pathogen behaviour within populations.

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

Upon completion of the module, students should be able to understand the role of various structures associated with the bacterial cell in causing disease, understand a range of diseases caused by bacteria, understand the structure of viruses and how this relates to the capacity of viruses to cause disease, understand the host response to viral challenge, understand the mechanisms by which diseases spread, and understand how epidemiological theory is used to understand the behaviour of pathogens in populations

Transferable skills

1. Critical appraisal of source material
2. Self directed learning
3. Adult learning

Study

Study time

Type	Required
Lectures	28 sessions of 1 hour (19%)
Tutorials	1 session of 1 hour (1%)
Private study	120 hours (80%)
Assessment	1 hour (1%)
Total	150 hours

Private study description

Independent learning, self directed learning and revision for final year exams.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group B2

Assessment component	Weighting	Study time	Eligible for self-certification
Closed-book end-of-year examination	100%	1 hour	No

In-person locally-timetabled closed-book end-of-year examination.

Reassessment component is the same

Feedback on assessment

Exam marks released in June

Past exam papers for LF127

Availability

Courses

This module is Core for:

- Year 1 of UBSA-C1B9 Undergraduate Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
    - Year 1 of C1A3 Biomedical Science
    - Year 1 of C1B9 Biomedical Science
- Year 1 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- Year 1 of ULFA-CB18 Undergraduate Biomedical Science with Placement Year

This module is Core optional for:

- Year 1 of UBSA-3 Undergraduate Biological Sciences
- Year 1 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- Year 1 of ULFA-C113 Undergraduate Biological Sciences (with Placement Year)
- Year 1 of ULFA-C1A5 Undergraduate Biological Sciences with Industrial Placement (MBio)

This module is Optional for:

- Year 1 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 1 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 1 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)

This module is Option list A for:

- Year 1 of UBSA-C700 Undergraduate Biochemistry
- ULFA-C1A2 Undergraduate Biochemistry (MBio)
    - Year 1 of C1A2 Biochemistry
    - Year 1 of C700 Biochemistry
- Year 1 of ULFA-C702 Undergraduate Biochemistry (with Placement Year)
- Year 1 of ULFA-C1A6 Undergraduate Biochemistry with Industrial Placement (MBio)
- Year 1 of ULFA-B140 Undergraduate Neuroscience (BSc)