LF307-15 One World Health and Neglected Tropical Diseases

21/22

Department
Life Sciences
Level
Undergraduate Level 3
Module leader
Orin Courtenay
Credit value
15
Module duration
10 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

The main objective of this module is to introduce students to important concepts in population biology and epidemiology that are key to understanding medical and veterinary infectious disease transmission, treatment and their control. Particular emphasis is given to current efforts to improve One World health with a focus on example topical diseases and Neglected Tropical Diseases. The module builds on and extends knowledge gained from previous modules (Evolution, Microbiology, Virology, Immunology, Epidemiology) and demonstrates how it can be used to study and understand the disease process and how such understanding can be exploited to develop strategies for prevention and treatment. Diseases are placed in a broad context by teaching from a global perspective and including historical, present and potential future developments. The module will help students to integrate various aspects of biology taught at different levels and times during their degree and to apply them to these issues.

Module aims

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One World health with a focus on example topical diseases and Neglected Tropical Diseases. The module builds on and extends knowledge gained from previous modules (Evolution, Microbiology, Virology, Immunology, Epidemiology) and demonstrates how it can be used to study and understand the disease process and how such understanding can be exploited to develop strategies for prevention and treatment. Diseases are placed in a broad context by teaching from a global perspective and including historical, present and potential future developments. The module will help students to integrate various aspects of biology taught at different levels and times during their degree and to apply them to these issues.

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.

The syllabus comprises 20 lectures, comprising 5 lectures covering key concepts of population dynamics, disease burdens and causes, epidemiology, control theory and modern approaches to predictive mathematical modelling. Followed by 15 lectures of illustrative case studies covering a diversity of examples ranging from influenza, Foot and Mouth, Helminths (worms), Protozoa, to Avian flu.

Learning outcomes

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

- Students should gain an overview of the history, pathology, epidemiology and interventions of major classes of infectious human and animal diseases, and the current challenges that are to be faced. Specific examples are discussed in detail
- Once the nature of the disease has been understood, this knowledge should then be applied to discussions of quantitative methods of exposed population management, treatment and prevention.
- By the end of the module the students are expected to integrate all aspects of the module and have a coherent understanding of the complex interactions between the disease causing agent, vector and the host, to consider within their geographical and population specific settings, the long term effect on both treatment/cure or prevention strategies

Indicative reading list

Brown, F., et al. (eds.) Vaccine Design (Wiley Scientific, 1993). Cox, F. E. G. Modern Parasitology: A Textbook of Parasitology (Blackwell Scientific Publications, 1993).
Lankinen, K. S., et al. (eds.) Health and Disease in Developing Countries (Macmillan Press, 1994). Medley, G. F. (eds.) “Conflicts between the individual and communities in treatment and control.” In Models for Infectious Human Diseases (Cambridge University Press, 1996). Three copies of this chapter are available in BSSRC. Nguyen, L. and Pieters, J. (2009). Mycobacterial Subversion of Chemotherapeutic Reagents and Host Defense Tactics: Challenges in Tuberculosis Drug Development. Annual Review of Pharmacology and Toxicology 49. Pepper, D. J, Meintjes, G. A, Mclleron, H., Wilkinson, R. J. (2007). Combined therapy for Tuberclosis and HIV-1: the challenge for drug discovery. Drug Discovery Today 12: 980-989. Investigating in Health. (World Bank Development Report, 1993).

Subject specific skills

a. Demonstrate clear understanding of the scientific topic
b. Contain evidence of extended reading and lateral integration of material not covered in the lectures
c. Demonstrate independent thought and deep understanding
d. Specifically answer the set question using information from multiple lectures and sources
e. Be structured and formatted in a way that demonstrates understanding and logical flow
f. Use multiple sources to construct complex scientific arguments and integrating these to build and develop the student's own scientific conclusions.

Transferable skills

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

Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (12%)
Private study	130 hours (76%)
Assessment	20 hours (12%)
Total	170 hours

Private study description

130 hrs of self-study and directed reading to prepare for the open book assessment

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

Assessment group A

	Weighting	Study time
Open Book Assessment	100%	20 hours

Final assessment for the module will be on open book assessment. This is an essay based assessment consisting of 4 questions- students need to answer 2. The essays cannot be answered using lecture notes alone- students will need to perform background research and essays will need to be fully referenced.

Feedback on assessment

Feedback will be provided on Moodle after the exam board

Availability

Courses

This module is Core optional for:

- Year 3 of UIPA-C1L8 Undergraduate Life Sciences and Global Sustainable Development

This module is Optional for:

- UBSA-3 Undergraduate Biological Sciences
  - Year 3 of C100 Biological Sciences
  - Year 3 of C100 Biological Sciences
- Year 3 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- Year 4 of ULFA-C113 Undergraduate Biological Sciences (with Placement Year)
- Year 3 of ULFA-C1A5 Undergraduate Biological Sciences with Industrial Placement (MBio)
- UBSA-C1B9 Undergraduate Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
  - Year 3 of C1A3 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- Year 3 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
- Year 3 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 3 of ULFA-B142 Undergraduate Neuroscience (MBio)

- Year 3 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)