LF307-15 One World Health and Neglected Tropical Diseases

26/27

Department
Life Sciences
Level
Undergraduate Level 3
Module leader
Erin Gorsich
Credit value
15
Module duration
10 weeks
Assessment
50% coursework, 50% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

One Health is the idea that the health of people, animals, and the environment are interconnected. This module explores research on One Health, with a global perspective. How do we achieve optimal health in an interconnected world? What organisations are responsible for One Health? Where do concepts from ecology and medicine intersect? What characterises a One Health approach to research?
In addressing these questions, the module builds on and extends knowledge gained from previous Y2 modules (Ecology, Evolution, Microbiology, Virology, Immunology, Epidemiology).
Following introductory material, the lectures in this module cover the core principles of One Health, using one case study to demonstrate each principle. Each case study will be addressed from a medicine, veterinary medicine, and ecological perspective, and each will review impacts on health policy. The module will help students to aspects of biology taught at different levels and times during their degree and to apply them to global health challenges.

Module aims

The aims of this module are (1) to understand One Health concepts and key stakeholders; (2) to develop critical perspectives on One Health and (3) to use case studies to explore contemporary

research methods and key concepts. For example, we use research on rabies as a case study to demonstrate the value of multi-stakeholder and multi-disciplinary perspectives; we use research on foot-and-mouth disease virus to demonstrate the value of data and model-informed policy; and we use research on arboviruses to demonstrate the importance of considering biological mechanisms, with a focus on population immunity and environmental context.

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 18 lectures in total. It consists of 3 lectures introducing the concept and tools needed for One Health research, followed by 15 lectures of illustrative case studies. The case studies cover a diversity of examples, including rabies, zoonotic influenza, foot-and-mouth disease virus, and mosquito-borne disease.

Learning outcomes

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

- Critically evaluate One Health principles, including their historical development, key stakeholders, and the scientific, social, and policy drivers shaping contemporary One Health practice.
- Using case studies, apply contemporary research methods and understand key concepts in One Health (e.g. rabies, foot-and-mouth disease, arboviruses). Key concepts include the value of muti-stakeholder and multi-disciplinary perspectives; the value of data and model-informed policy; and the importance of considering biological mechanisms, with a focus on population immunity and environmental context.
- Synthesize knowledge across biological, environmental, geographical, and population -specific contexts to develop a coherent understanding of host–pathogen–vector interactions and their implications for long-term disease treatment, control, and prevention strategies.
- Critically appraise the role of quantitative approaches in One Health, and apply them to an emerging global health challenge.

Subject specific skills

a. Demonstrate a 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 integrate 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	18 sessions of 1 hour (12%)
Seminars	1 session of 2 hours (1%)
Private study	98 hours (65%)
Assessment	32 hours (21%)
Total	150 hours

Private study description

Self-study and directed reading to prepare for the closed-book examination and grant proposal

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 C

Assessment component	Weighting	Study time	Eligible for self-certification
Proposal	40%	20 hours	Yes (extension)

Students will develop a grant proposal for a One Health research program. The topic will be selected by the student, but can not include the case studies included in the module (that is not Rabies, AIV or FMDV). They will review literature on their topic to build an argument on the

	Weighting	Study time	Eligible for self-certification

importance of their research. The research will ideally include human, animal, and environmental aspects. The proposal also must include a mathematical model about the topic, detailing how it was developed, parameterised, and used.

Reassessment component is the same

Assessment component

Participation in an in-person grant review panel	10%	10 hours	Yes (extension)

Students will read and assess a subset of the grants, deciding which grants should receive funding.
Written feedback on the grants is required in advance, but only participation is assessed in person.

Reassessment component is the same

Assessment component

In-class computer-based examination	50%	2 hours	No

The final assessment for the module will be a closed-book, in-person assessment. This is an essay based assessment on the content of the lectures and associated readings.

Reassessment component is the same

Feedback on assessment

Feedback will be provided on Moodle after the exam board

Past exam papers for LF307

Availability

Courses

This module is Core optional for:

- UIPA-C1L8 Undergraduate Life Sciences and Global Sustainable Development
  - Year 3 of C1L8 Life Sciences and Global Sustainable Development
  - Year 3 of C1LA Life Sciences and Global Sustainable Development: Biological Sciences
  - Year 3 of C1LB Life Sciences and Global Sustainable Development: Ecology
- UIPA-C1L9 Undergraduate Life Sciences and Global Sustainable Development (with Intercalated Year)
  - Year 4 of C1L9 Life Sciences and Global Sustainable Development (with Intercalated Year)
  - Year 4 of C1LC Life Sciences and Global Sustainable Development: Biological Sciences (with Intercalated Year)
  - Year 4 of C1LD Life Sciences and Global Sustainable Development: Ecology (with Intercalated Year)

This module is Optional for:

- Year 3 of UBSA-3 Undergraduate 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)
- Year 3 of UBSA-C1B9 Undergraduate 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)
- Year 4 of ULFA-CB18 Undergraduate Biomedical Science with Placement Year