

**Multidisciplinary Application of One Health in Major
and Endemic Zoonoses**

Code: 43757

ECTS Credits: 9

Degree	Type	Year	Semester
4315915 Zoonoses and One Health	OB	0	1

Contact

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Use of Languages

Principal working language: english (eng)

Prerequisites

As a requirement for admission you must have one of the Degrees listed below:

Graduate, Bachelor or Diploma in the field of Health Sciences (Veterinary Science, Medicine, Nursing, Pharmacy, Science and Food Technology, Animal Science and Health, Biomedicine, Psychology, among others), Life Sciences (Biology, Biochemistry, Biotechnology, Zoology, Botany, Ecology, Biodiversity, Environmental Sciences, Agronomic Engineering, Forestry, among others) or equivalent

Objectives and Contextualisation

This module will present the general concepts of zoonoses. The evolutionary mechanisms allowing persistence of infectious agents will be also presented. Current and future therapeutic agents or strategies will be discussed. The relevance of the above mentioned topics in public health will be evaluated.

Major topics will be programmed as monographic sessions that will comprehensively cover the different aspect of the biology, epidemiology, pathogenesis, diagnosis, control and prophylaxis of each pathogen. In these sessions, round table discussions under the One Health approach will be held with the participation of lecturers and students.

Before each session, students must read scientific papers or technical documents related to the topic for their subsequent group discussion. Autonomous work is required for the preparation of questions, exercises and/or cases.

Competences

- Act in accordance with the code of ethics of the profession.
- Analyse the epidemiology, pathogenesis, diagnosis and control of the major zoonoses based on the vision of One Health.
- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Continue the learning process, to a large extent autonomously.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.

- Manage and report on the risk of zoonoses in special situations, health emergencies or biological threats.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work alone or in a multidisciplinary team within the area of study, showing critical reasoning and creativity, and the ability to analyse, interpret and synthesise the data generated.

Learning Outcomes

1. Assess effectively and multidisciplinarily all the components of human, animal and environmental health that influence the presentation of the principal zoonoses.
2. Assess the effectiveness of a surveillance programme.
3. Comply with the profession's code of practice in political, economic, social and cultural contexts in developed countries where it will be practised.
4. Efficiently and accurately transmit information from bibliographic sources that is suitable for assessing risk from the principal work-related zoonoses.
5. Formulate diagnostic measures to identify the specific causes and their possible origin in the case of the principal zoonoses.
6. Formulate the most suitable control measures to minimise risk from the major global zoonotic agents.
7. Know the epidemiology, pathogenesis, diagnosis and control of the most important zoonoses on an international scale, applying the multidisciplinary vision of One Health.
8. Know the mechanisms used by zoonotic agents to evade conventional treatments and the new strategies for control and/or prophylaxis.
9. Perform critical analyses of zoonosis risk situations, solve problems and make decisions.
10. Recognise what a zoonosis is and all its related components.
11. Resolve cases and exercises by working independently.
12. Use the technical bases for developing and implementing surveillance programmes.

Content

- Introduction to zoonoses and etiologic agents
- Antimicrobial resistance
- New treatments and therapeutical approaches
- Major Viral Zoonoses
- Major Bacterial Zoonoses
- Major Parasitic Zoonoses
- Zoonotic mycoses

Methodology

	Guided	Supervised	Autonomous
Hours	76	30	119
On-site class	100%	10%	0%

◇ Guided activity:

Master classes / Lectures

Seminars

Debates

Practical activities in the laboratory

◇ Supervised activity:

Tutorials

Resolution of cases / exercises in virtual format

◇ Autonomous activity:

Reading of articles and technical documents of interest

Personal study

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures, seminars, debates and practical activities	76	3.04	3, 1, 2, 8, 7, 5, 6, 9, 10, 4, 12
Type: Supervised			
Resolution of cases and exercises in virtual format. Tutorials	30	1.2	3, 1, 2, 5, 6, 9, 11, 4, 12
Type: Autonomous			
Reading of papers and scientific-technical documents related to major and endemic zoonoses. Autonomous study	119	4.76	1, 2, 8, 7, 5, 6, 9, 10, 12

Assessment

	Weight Final Mark
Attendance and active participation in class	10
Attendance and active participation in the laboratory practices	20

A. The assessment of the students will be done through a combination of criteria:

- Attendance to lectures and participation in the activities carried out individually or in groups during those sessions (10%). Non justified absences for a given activity are not accepted. In case of a justified absence (illness, etc.), the qualification of this activity will be considered but restrictions may apply.
- Attendance and participation in the laboratory practical lectures (20%). All activities and exercises will be assessed. The acquisition of laboratory skills and competences will be assessed as well (continuous assessment).
- Self-learning and oral presentation (30%). The assessment will take into account the quality and clarity of the presentation and the knowledge demonstrated during the discussion of the subject.
- Synthesis exam (40%). It will include questions on all the topics covered throughout the module. A minimum grade of 4/10 will be required. In case of not reaching the minimum mark, resit exam of similar characteristics will be taken.

B. In order to pass this module, compulsory attendance is required at a minimum of 80% of the on-site class hours of the module. The final average grade of the module must be equal to or greater than 5 out of 10.

C. In the case of failing to pass, the students will have an additional opportunity consisting in a synthesis exam in which they must obtain at least 5 out of 10 points.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance and active participation in the laboratory practices	20	0	0	7, 5, 11
Attendance and active participation in the lectures. Continuous assessment	10	0	0	1, 2, 8, 7, 5, 6, 9, 10, 12
Self-learning activities	30	0	0	1, 2, 5, 6, 9, 11, 4
Tests of theoretical-practical contents or synthesis activities	40	0	0	3, 1, 2, 8, 7, 5, 6, 9, 10, 11, 4, 12

Bibliography

- David González-Barrio (Ed.). Zoonoses and Wildlife: One Health Approach. Animals, Special Issue, April 2022. MDPI, Basel. ISBN: 9783036537351. <https://doi.org/10.3390/books978-3-0365-3735-1>
- John Mackenzie & Martyn Jeggo (Eds.). One Health and Zoonoses. Tropical Medicine and Infectious Disease, Special Issue, August 2019. MDPI, Basel. ISBN: 9783039212965. <https://doi.org/10.3390/books978-3-03921-296-5>
- Jakob Zinsstag, Esther Schelling, David Waltner-Toews, Maxine Whittaker, Marcel Tanner (Editors). One health: the theory and practice of integrated health approaches. CAB International, 2015. ISBN: 9781780643410 (Available for downloading online)

- Glenda Dvorak, James A. Roth, Gregory C. Gray, Bruce Kaplan, DVM. Zoonoses: Protecting People and Their Pets. First Edition, 2013. The Center for Food Security and Public Health, ISBN: 9780984627035

- Pedro N. Acha, & Boris Szyfres. (2003). Zoonoses and communicable diseases common to man and animals. Vols I, II and III. Pan American Health Organization, 3rd. Edition, 2003. Downloadable from the web <https://www.paho.org>

Vol. 1: Bacterioses and mycoses

Vol. 2: Chlamydioses, rickettsioses, and viroses

Vol. 3: Parasitoses

Internet resources:

<https://www.cfsph.iastate.edu/zoonoses/>

<https://www.cfsph.iastate.edu/one-health/>

<https://www.oie.int/en/what-we-do/global-initiatives/one-health/>

<http://www.cdc.gov/onehealth/zoonotic-diseases.html>

<https://www.who.int/news-room/fact-sheets/detail/zoonoses>

Software

Does not apply