

66854 - Emerging diseases with an impact on Public Health

Syllabus Information

Academic year: 2023/24

Subject: 66854 - Emerging diseases with an impact on Public Health

Faculty / School: 105 - Facultad de Veterinaria

Degree: 617 - Master's in Global Health: Integration of Environmental, Human and Animal Health

ECTS: 9.0

Year: 1

Semester: Annual

Subject type: Optional

Module:

1. General information

The subject helps students to deepen their knowledge of emerging diseases that have an impact on public health, including bacterial, viral, prion and parasitic diseases. To this end, the subject deals with their aetiological agents, modes of transmission, diagnostic methods and the most appropriate prevention and control tools for each of them. This approach is aligned with Sustainable Development Goals numbers 1 - 6, 9 and 13 of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement.

The subject is part of the Master's Degree in Global Health: Integration of Environmental, Human and Animal Health. This master's degree provides an interdisciplinary approach to health knowledge based on the study of diseases shared by humans and animals. It is desirable that the student has previous knowledge of biology, epidemiology, physiology, cytology and histology, microbiology, parasitology, immunology and pharmacology.

2. Learning results

Upon completion of this subject, the student will be able to:

- Know, from an advanced point of view, the microorganisms object of study in the different branches of microbiology and parasitology, and the pathological processes they cause.
- Know the zoonoses and emerging diseases caused by bacteria, viruses, prions, protozoa, helminths and arthropods.
- Know the biology of vectors and the diseases they transmit.
- Know the emerging risks in the food chain.
- Know the nutritional components, the use of medicines and associated problems.
- Know the resistance of pathogens to traditional therapeutic treatments.

The subject provides knowledge, understanding and control of emerging diseases, especially zoonotic diseases, in a globalized world. It provides students with a complete and updated training that offers them the knowledge to work in the future as professionals in public health, animal health and in the *One Health* environment. The knowledge acquired in this subject will be necessary to work in the above areas, but also in the scenario of the emergence of new infectious and parasitic agents that could cause potential epidemics or pandemics.

3. Syllabus

The program consists of theoretical classes (60 hours), practical classes (30 hours) and teaching assignments (20 hours) on the following emerging diseases:

Bacterial:

- Paratuberculosis.
- Clostridiosis
- Salmonellosis, Campylobacteriosis, Colibacillosis.
- Tuberculosis.
- Anthrax.
- Brucellosis.
- Q fever.
- Leptospirosis.
- Tetanus.
- Psittacosis, *Bartonella*
- Streptococcus *suis*.

Viral:

- Hepatitis E
- Coronavirus
- Avian influenza H5N1, Swine influenza H1N1.
- Rabies
- Ebola and Hantavirus.
- Human and animal lentivirolosis.
- NIPAH virus and Hendra virus.
- Rift Valley Fever.

Prionics:

- Scrapie and Bovine Spongiform Encephalopathy (BSE).
- Prion human diseases
- Interspecies transmission of prion agents.

Parasitic:

- Water-borne and food-borne protozoonoses.
- Geohelminthiasis.
- Helminthiasis transmitted by consumption of meat, fish, amphibians and crustaceans.
- Arthropodosis.

Vector-borne emergent diseases

Diseases emerging in aquaculture

Biotoxins and mycotoxins

Antimicrobial resistance

4. Academic activities

The theoretical part of the subject is structured in 7 blocks comprising 45 topics, taught in 60 hours of lectures. Prior to the start of the term, the documentation for each subject is made available to students on the University's virtual campus -Anillo Digital Docente- (ADD). At the end of some classes, students will be asked to fill out a questionnaire on their attention and performance. In addition, there will be a total of 15 practical sessions with a variable duration depending on their subject matter (1-3 hours) for a total of 30 teaching hours. Initially, an explanation of the session will be given and then the students will perform the practice under the permanent supervision of the teachers. Students will also be required to perform teaching assignments that represent a total of 20 hours of autonomous work. The faculty will provide the necessary documentation and will tutor the students in its completion. Finally, a total of 113 hours of non-attendance work are estimated, together with 2 hours for the assessment tests.

5. Assessment system

The student must demonstrate achievement of the intended learning outcomes through the following assessment activities:

ACTIVITY 1: WRITTEN TESTS

The theoretical and practical classes will be assessed by means of a final written test consisting of multiple-choice questions. It will assess the acquisition of basic theoretical knowledge of the subject. The questions will be on the different thematic blocks. The grade for this final written test will be between 0 and 10. The grade will be 50% of the final grade of the subject.

ACTIVITY 2: PARTICIPATION IN CLASSROOM ACTIVITIES

In order to stimulate continuous learning and, therefore, improve their attention and performance, at the end of some of the classes, students will answer a 5-minute quiz, which will include multiple choice questions related to the topic covered. The average grade obtained in these quizzes will account for 30% of the final grade of the subject and will only be considered if the student has completed at least 50% of the quizzes offered throughout the term.

ACTIVITY 3: THEORETICAL WORK AND WRITTEN PROJECTS

To pass this activity, the student must write a review of a topic of the above mentioned blocks, within the *One Health* environment. The grade for this activity will be between 0 and 10, and will represent 20% of the final grade of the subject. This assessment will take into account the following aspects:

Originality of the work (30 %)

Knowledge and understanding of the process described (30 %)

Bibliographic review: search, comprehension and interpretation (40 %).

Global test:

Students who do not pass the subject by this procedure will be entitled to a global written test that assesses the theoretical and practical contents of the subject. This test will be graded from 0 to 10 points. Assessment criteria: the written test will account for 100% of the final grade and will take place during the official examination period of the University of Zaragoza.