Universitat Autònoma de Barcelona

2022/2023

One Health: Introduction, Health Policy and Epidemiological & Statistical Methods

Code: 43755
ECTS Credits: 12

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)

Teachers

Alberto Oscar Allepuz Palau

Prerequisites

As a requirement for admission you must be in possession of any of the titles listed below:

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

Objectives and Contextualisation

Definitions, objectives and critical knowledge of the multidisciplinary nature of the One Health concept will be provided as a strategy for solving problems, focusing on the control of health with respect to people, domestic and wild animals and in the related ecosystem.

The official bodies and institutions involved, their functions, competences and interactions will be detailed. The risk analysis defined in the SPS agreement is a sequential process comprised by Risk Assessment, Management and Communication that must be transparently exposed and available to all public institutions and governments or private organizations. For this reason, each institution at the regional, national, community or international level has an assigned body (s) and entities responsible for risk analysis, which will be shown throughout the module.

Taking into account the need to establish an adequate risk assessment, a series of useful theoretical and technical knowledge will be provided to identify risk and make decisions. In this module you will learn basic notions of epidemiology, statistical and mathematical models and their application to epidemiological studies and risk assessment.

Competences

- Act in accordance with the code of ethics of the profession.
- Display understanding and familiarity with using the methodologies and tools of zoonotic risk assessment based on the concept of One Health.

- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Take decisions on the establishment of zoonosis surveillance and containment plans.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
- 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. Find information on zoonoses in all areas of health, through the resources available online.
2. Know and recognise the limitations of risk assessment and determine the areas of uncertainty.
3. Know the bodies and institutions involved in the evaluation, management and communication of risk.
4. Know the current legislation with regard to One Health.
5. Know the importance of multidisciplinary work in tackling diseases from the perspective of One Health.
6. Know the multidisciplinary concept of One Health and its applications.
7. Know the principal actors in risk management at all levels of intervention.
8. Know the profession and the political, economic, social and cultural contexts in which it will be practised.
9. Learn to work alone or in a team, effectively and multidisciplinarily, on all the components of human, animal and environmental health.
10. Use epidemiological and statistical tools and methodologies: both basic and applied to the surveillance and containment of zoonoses from the multidisciplinary perspective of One Health.

Content

-Introduction to the One Health Concept

-Organisms official: organizational chart and functions of evaluation, management and communication of risks

-Epidemiological tools applied to One Health. Risk assessment

- Basic statistical modeling

-Modelization in advanced statistics and spatial analysis

Methodology

Directed activity:

Master classes / Exhibition classes

Problem-based learning

Debates

Problem solving classes / cases / exercises

Supervised activity:

Tutorials

Resolution of cases, exercises and problems

Autonomous activity:

Realization of works / reports

Reading articles / reports 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			
Classes of problem solving, cases and exercises	25	1	9, 7, 2, 8, 1, 10
Debates	5	0.2	6, 7, 2, 5, 4
Master classes / Exhibition classes	35	1.4	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Problem-based learning	25	1	9, 3, 2, 5, 8, 1, 10
Type: Supervised			
Resolution of cases, exercises and problems in a virtual way	35	1.4	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Tutorials	15	0.6	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Type: Autonomous			
Personal study	85	3.4	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Reading articles and reports of interest	45	1.8	6, 3, 7, 2, 5, 8, 1
Realization of works / reports	30	1.2	9, 6, 3, 7, 2, 5, 4, 8, 1, 10

Assessment

A. Students will be evaluated based on the following criteria, with a proportional weight over the final note indicated in parentheses:

- Attendance to class and participation in the activities carried out individually or in groups during these sessions (20%).

- Oral presentations (50%):

Oral presentation on the role of official bodies
Oral presentation on descriptive epidemiology

- Written works (30%):

Descriptive statistics
Simple and logistic regression

B. To overcome this module, it is required:

- Minimum compulsory attendance of 80% of the contact hours of the module

- The final average mark of the module must be equal to or greater than 5 out of 10

- Have presented ALL the works.

C. In case of not reaching the necessary average mark, the recovery will be made through the repetition of the written works, the average grade of which must be at least 6 out of 10.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Assistance and active participation in class	20	0	0	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Delivery of reports / works	40	0	0	9, 6, 3, 7, 2, 5, 4, 8, 1, 10
Oral presentations of works	40	0	0	9, 6, 3, 7, 2, 5, 4, 8, 1, 10

Bibliography

- Introducción a Una Sola Salud (One Health concept)

The evolution of One Health: a decade of progress and challenges for the future. Downloaded from veterinaryrecord.bmj.com on September 29, 2014 - Published by group.bmj.com:

https://www.onehealthcommission.org/documents/news/Gibbs_The_evolution_of_One_Health_BBE95DE2EA279

http://www.onehealthinitiative.com/about.php

http://www.fao.org/ag/againfo/home/en/news_archive/2010_one-health.html

-Organismos oficiales: organigrama y funciones de evaluación, gestión y comunicación de riesgos (Official Institutions and their role in Risk Management and Communication).

* United Nations

WTO- SPS agreement. Impact on Public Health Food safety, Animal & Plant Health
https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

WHO. Areas of work in food safety and zoonosis: http://www.who.int/foodsafety/areas_work/en/

FAO. Contributing to One World , One Health http://www.fao.org/docrep/011/aj137e/aj137e00.htm

CODEX ALIMENTARIUS. Public Health, Food safety, Animal and Plant Health.

http://www.fao.org/fao-who-codexalimentarius/codex-home/en/

* World Animal Health (OIE). http://www.oie.int/en/ . The concept of One health.

http://www.oie.int/en/for-the-media/onehealth/

* European Union.

Overview of EU activities Public Health, Animal & Plant Health and Food safety:
http://ec.europa.eu/health/index_en.htm

General Food law (Food , Feed , Animal & Plant legislation):
http://ec.europa.eu/food/safety/general_food_law/index_en.htm

EFSA: http://www.efsa.europa.eu

ECDC: http://ecdc.europa.eu/en/Pages/home.aspx

ECDC-EFSA Rapid risk assesssments:
http://ecdc.europa.eu/en/publications/risk_assessment/Pages/default.aspx

EMA: http://www.ema.europa.eu/ema/

Antimicrobial resistance:
http://www.ema.europa.eu/ema/index.jsp?curl=pages/special_topics/general/general_content_000439.jsp

Maximum residues levels MRL:
http://www.ema.europa.eu/ema/index.jsp?curl=pages/regulation/document_listing/document_listing_000165.jsp&

European National Agencies:

http://www.bfr.bund.de/cm/364/eu-food-safety-almanac.pdf

* United States:

FDA. Home page http://www.fda.gov FDA organigram
http://www.fda.gov/AboutFDA/CentersOffices/OrganizationCharts/ucm393155.htm

Center for Food Safety and Applied Nutrition
http://www.fda.gov/AboutFDA/CentersOffices/OfficeofFoods/CFSAN/default.htm

Center for Veterinary Medicine http://www.fda.gov/AboutFDA/CentersOffices/OfficeofFoods/CVM/default.htm

Opinion article from FDA about One health:
http://www.fda.gov/animalveterinary/resourcesforyou/animalhealthliteracy/ucm278139.htm

Centre of Disease Control (CDC): http://www.cdc.gov/foodborneburden/PDFs/CDC-and-Food-Safety.pdf\

Office of Regulatory Affairs:
http://www.fda.gov/AboutFDA/CentersOffices/OfficeofGlobalRegulatoryOperationsandPolicy/ORA/default.htm

USDA (United States Department of Agriculture) APHIS One health concept :

http://www.usda.gov/wps/portal/usda/usdahome?navid=onehealth

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/SA_One_Health

EPA Environmental Protection Agency Activities in Public Health , animal Health and Plant health:

https://www.epa.gov/aboutepa

* Otros:

Transatlantic Taskforce on Antimicrobial Resistance - TATFAR -

http://ecdc.europa.eu/en/activities/diseaseprogrammes/TATFAR/Pages/index.aspx

http://www.cdc.gov/drugresistance/tatfar/index.html

J. Serratosa, Oriol Ribo 2009 International context and impact of EFSA activities in animal welfare in the European Union. 2009 Elsevier (Book- 275-303 pp) Welfare of animal production : assessment and management of risks.

- Epidemiología y análisis de riesgo

Dohoo I., Martin W., Stryhn H. (2009) Veterinary Epidemiologic Research - 2nd Edition.

Dirk U. Pfeiffer, Timothy P. Robinson, Mark Stevenson, Kim B. Stevens, David J. Rogers, and Archie C.A. Clements. (2008). Spatial Analysis in Epidemiology.

Thrusfield, M. (2005) Veterinary Epidemiology. (3ª ed.) Ed. Blackwell Science. Oxford.

OIE (2004) Handbook on Import Risk Analysis for Animals and Animal Products, vol. 2. World Organization for Animal Health (Office International des Epizooties), Paris, France.

R. Bonita, R. Beaglehole, T. Kjellström. Basic epidemiology. 2nd edition. World Health Organization.

- Modelización estadística

David Collett. Modelling Survival Data in Medical Research. 2nd edition. Chapman& Hall.

Hosmer, DW, Lemeshow S. Applied logistic regression. New York. John Wiley & Sons. 2000.

Katz MH. Multivariable Analysis: A Practical Guide for Clinicians. Cambridge University Press, 2006.

Kleinbaum, David G., Klein, Mitchel. Survival Analysis. A Self-Learning Text, Third Edition. Springer.

Lawson A. (2013). Bayesian disease mapping.

Rawlings JO, Pantula SG, Dickey DA. Applied Regression analysis. A research Tool. Second Edition. Springer

Saez M, Saurina C. (2007). Estadística y Epidemiología Espacial. Girona: Documenta universitaria.

Software

QGIS (https://qgis.org/ca/site/)

R (https://www.r-project.org/9