Universidad Zaragoza

Academic Year/course: 2022/23

66864 - Master's Dissertation

Syllabus Information

Academic Year: 2022/23
Subject: 66864 - Master's Dissertation
Faculty / School: 105 - Facultad de Veterinaria
Degree: 617 - Master's in Global Health: Integration of Environmental, Human and Animal Health
ECTS: 15.0
Year: 1
Semester: Annual
Subject Type: Master Final Project
Module:

1. General information

1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

The aim of the course is for students to carry out research work in the field of Global Health. The work will be carried out individually, and it will differ from those carried out within the different subjects of the master's degree and it will be included in either of the two specialities of the master's degree, Public Health or Translational Research. The work may also consist of an exhaustive bibliographic review on a specific topic related to the theme of the master's degree. The student will have a Mentor (with the of Doctor?s degree) who will supervise the development of the Master?s Dissertation from the initial design of it, the setting of objectives, the methodology to be used and the analysis and discussion of the results. In the Master?s Dissertation the student will reflect the competences acquired throughout the Master according to the search for bibliographic information, the application of diverse tools in the study of Health, the critical capacity in the analysis of results, the elaboration of scientific texts and oral communication.

Due to the diversity of works, these approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (https://www.un.org/sustainabledevelopment/es/), in such a way that the acquisition of the subject learning goals provides training and competence to contribute to some extent to its achievement:

- Goal 3: Good Health and Well-being
- Goal 4: Quality Education
- Goal 5: Gender Equality
- Goal 6: Clean water and sanitation
- Goal 8: Decent work and economic growth
- Goal 9: Industry, innovation and infrastructures
- Goal 12: Responsible consumption and production
- Goal 13: Climate action
- Goal 14: Life below water
- Goal 15: Life on land

1.2. Context and importance of this course in the degree

This course is part of the University Master in One Health: Integration of Environmental, Human and Animal Health. With a workload of 15 ECTS, it can be taken throughout the academic year. The work will be defended once the student has passed the rest of the subjects of the master. The student will have to reflect the theoretical and practical knowledge and skills acquired throughout the master's degree.

1.3. Recommendations to take this course

The subject is compulsory and can be developed throughout the course. In the first weeks of the course, the Master's coordination will meet with the students to present the lines of research offered by the different professors of the Master's and the most relevant aspects of this work. The Master?s Dissertation may be held both in the laboratories of the research groups of the professors teaching in this Master's and in research institutes, institutions and companies with which the program has an agreement for this purpose.

If the work is carried out in laboratories or institutions other than those teaching the master's degree and under the direction of teachers who are not participating in the master's degree, the master's coordination will assign a tutor who is in tune with

the chosen subject and who is involved in teaching the master's degree and who belongs to the university departments responsible for teaching the master's degree.

2. Learning goals

2.1. Competences

By taking this course the student will achieve the following specific skills:

- Develop suitable study designs for epidemiological, translational and other health research.
- Apply and analyse the bibliographic resources and those available on the web to obtain the necessary information for the approach of the research work and for the discussion of the results.
- Apply knowledge and skills acquired to a real research problem in the health field.
- Work autonomously and face the resolution of experimental problems that arise in the development of the Master?s Dissertation.
- Interact and integrate into a research group by sharing the research experience of the other team members.
- Interpret the results obtained in an experimental work and use a critical sense to discuss them with those of other studies related to the topic.
- Communicate and transmit knowledge and results of the research, both orally and in writing.

2.2. Learning goals

If students complete the course, they should be able to:

- Carry out a state of the art review about the research topic on which the TFM will be carried out.
- Propose the starting hypothesis and the experimental planning together with the mentor.
- Reflect in the report the methodology used in its development, the results obtained in the experiments carried out and the interpretation and discussion of these results with those of other works related to the topic.
- Communicate and defend orally the results and conclusions of the research carried out, before the examining board.

2.3. Importance of learning goals

The Master?s Dissertation reflects a large part of the knowledge, skills and competences acquired throughout the Master's Degree. In this individual work, but mentored, the student must express his or her capacity for critical analysis and his or her skills in transmitting a scientific study and the results of an investigation. The development of these skills is crucial for a professional involved in Public Health or a future researcher in the field of Global Health.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that he/she has achieved the intended learning outcomes through the following assessment activities:

The subject is assessed by means of the defence of the Master?s Dissertation that finalizes the studies of the master. The students deposit a hard and a soft copy of the Master?s Dissertation at the secretary's office of the Faculty of Veterinary before the date set by the center for each call, so that it can be given to the members of the tribunal. The Master?s Dissertation will be publicly presented and defended before a board of three professors of the master's degree appointed by the Faculty of Veterinary.

The written work will represent 60% of the final grade and the oral presentation 40%. The grade awarded by the tutor will be delivered in a sealed envelope for consultation by the evaluating court. Headings will be used to facilitate the evaluation of the activities carried out by the director of the work, and for the evaluation of the written document and the presentation and oral defence of the Master`s Dissertation by the board (https://veterinaria.unizar.es/academico/trabajo-fin-master-salud-global).

Written report of the Master?s Dissertation

The written report will have a maximum length of 50 pages (format requested: Times, Arial, Palatino, verdana, calibri; font size: 11 points; line spacing: 1.5), may be submitted in Spanish or English and will consist of the following sections:

- Title
- Summary in Spanish and English
- Introduction
- Aims of the study

- Methodology
- Results and discussion (individually or in group)
- Conclusions
- Bibliographic references

The following aspects of form and content will be assessed by the examining board according to the published rubrics:

1. Introduction, relevance and interest of the theme and setting out the hypotheses and objectives of the work
2. Appropriate, well-described and justified methodology.
3. Adequate presentation and discussion of the results and conclusions of the work.
4. Use of graphic elements, figures and tables in an adequate way.
5. Quality of the bibliography used and absence of plagiarism.
6. Quality of language, organization and presentation of the report.

Oral presentation of the Master?s Dissertation

The oral presentation will last a maximum of 20 minutes. The members of the panel may ask questions about the work for 15 minutes. The presentation of the Master's Dissertation may be made in two of the calls for papers to be held in July, September, December and February.

The examining board will assess the following aspects of the defence of the work according to the published rubric: adjustment in the established times, organisation of the exhibition, graphic material and support used, verbal and non-verbal communication, clarity and capacity of response, knowledge of the subject.

Grading system: in accordance with the Regulation of Learning Assessment Standards of the University of Zaragoza (Agreement of the Governing Council of 22 December 2010), the results obtained by the student will be graded according to the following numerical scale from 0 to 10, with the expression of one decimal place, to which the corresponding qualitative grade may be added:

0-4.9: FAIL.

5.0-6.9: PASS

7.0-8.9: GOOD (NT).

9.0-10: EXCELLENT (SB).

Students with a grade over 9.0 might be awarded with honours and it could be given to more than the 5% of the enrolled students during the academic year

It is recommended to review the regulations in force during the course in which the Master?s Dissertation is presented on the website of the Faculty of Veterinary (https://veterinaria.unizar.es/academico/trabajo-fin-master-salud-global).

Mentor assessment

The mentor will make an assessment of the work carried out by the student throughout the completion of the work and the writing of the report following the rubric. Thus, the following aspects will be evaluated:

- Work design and activity planning.
- Use of technical and bibliographic resources.
- Application of theoretical and practical knowledge.
- Autonomous work and problem solving.
- Interpretation of results.
- Group work.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process that has been designed for this subject is based on:

The Master?s Dissertation is the culmination of the student's training in the Master's and with this activity, the student will have to demonstrate his/her ability to research and analyse and, if necessary, solve a health-related issue or problem from a scientific perspective. The results obtained must be recorded in a report and the work done must be publicly defended. The Master?s Dissertation mentor or mentors will be in charge of guiding the student in the methodology to be followed in order to carry out the research work. As part of a research group, the student will become familiar with the subject chosen for the work by searching for appropriate bibliographic and information sources for its development. Through autonomous analysis and mentoring the student will discuss the obtained results. In this work, the student will learn to write a scientific-technical report, the characteristics in terms of structure, language used and presentation of results. Finally, the oral defence of the Master?s Dissertation before an examining board with a limited period implies an important part of the student's overall training.

4.2. Learning tasks

The mentor will establish the main learning activities of the Master?s Dissertation and these will be related to the development of the work, which will be carried out throughout the course with the student dedicating 15 ECTS. These activities will consist on:

- The mentor will propose a specific topic to the student for the development of their Master?s Dissertation or will accept the one that could be proposed by the student. In both cases, the mentor will guide the student in the bibliographic and information search to know the background of the problem.
- The mentor will guide the student to propose the activities or experiments needed to solve the problem and to make a work plan.
- The mentor will train the student in the necessary tools for the realization of the work and the student will apply them in an independent way.
- The student will discuss the results with the tutor and members of the research team in which he or she is integrated. The student will discuss the results, rethinking if necessary new analyses and experiments.
- Under mentoring, the student will learn to make a written scientific-technical report following the instructions in section 3.1, and the presentation for its oral defence.

4.3. Syllabus

The syllabus offered to the student to help him/her achieve the expected results includes the following activities:

There is no specific programme for the Master's Dissertation. Each student will establish a work plan with their mentor and it will depend on the line of research chosen. These lines will be offered at the beginning of the course. As an example, the professors involved in teaching the Master belong to research groups with very different lines of research related to Animal Health, Environmental Health, Public Health and Translational Research. These lines are listed below

Animal Health

- Parasitology and Parasitic Diseases.
- Vector-borne diseases in humans and animals.
- Ecology, Biology and Control of Diptera
- Viral Zoonoses, bacterial, parasitic and prion diseases.
- Molecular epidemiology of intestinal protozoa and free-living amoebas Evaluation of antiprotozoa. Evaluation of water purification processes.
- Epidemiology and Biostatistics.
- Clinical and aquatic animal health
- Ichthyopathology, Invasive Species
- Equine Clinic and Healthcare.
- Health services research; cardiovascular disease epidemiology; pharmacoepidemiology; antibiotic use studies.
- Infectious and immunological diseases of small ruminants.
- Pathogenesis, prevention and control. Vaccines.

Emviromental Health

- Aquatic ecology.
- Governance and resilience of the commons and ecosystem services in the face of global social and environmental change.
- Ecosystem restoration.
- Monitoring of wild ungulates.
- Agrosilvopastoral systems; Ecosystem services; Sustainability assessment in socio-agroecosystems.
- Molecular and Environmental Toxicology.
- Ecological sustainability of the agri-food system.

Public Health

- Preventive Medicine, Public Health and Health Services. Inequalities in health.
- Healthy aging.
- Clinical Microbiology and Bacterial Resistance to Antimicrobials.
- Harmful gender practices as determinants of health.
- Health promotion. Social determinants of health. Gender, diversity and inequalities in health. Social Epidemiology and Public Health.
- Patient safety, quality of care, epidemiology and infection prevention.
- Use of health services. Inequalities in health. Cardiovascular pharmacoprevention.
- Food Safety Management

- Food risk assessment.
- Investigation of moulds and mycotoxins in food.
- Inactivation of pathogenic microorganisms by thermal and non-thermal technologies in food

One Welfare

- Human-animal relationships.
- Animal welfare and productive environment.
- Rural development; agricultural and livestock production and marketing; local food systems; bioeconomy.
- Quantitative genetics applied to the improvement of livestock species.
- Animal production
- Quality of animal products.
- Ecological sustainability of the agri-food system.

Human Health

- Chronobiology, influence of light and circadian rhythms on health. Degenerative diseases of the retina.
- Diabetes mellitus and artificial nutrition.
- Inflammatory factors in premature birth and risk of premature birth.
- Digestive diseases: inflammatory bowel disease and colorectal cancer.
- Natural history and physiopathological mechanisms of evolution in obstructive respiratory diseases (COPD, Asthma, Sleep Apnea)
- Minimally invasive surgery (laparoscopy).
- Human nutrition.

Translational Research

- Multivariate data analysis. General theory of approximation. Least squares approximation, linear regression and partial least squares.
- Discovery and development of antimicrobials and resistance mechanisms.
- Genesis and functionality of the bacterial surface and secretome.
- New vaccines against tuberculosis: Study of the pathogenicity and immunity mechanisms of Mycobacterium tuberculosis.
- Identification of biomarkers in human and animal diseases.
- Search for biomarkers in animal models of neurodegeneration and their translation to the clinic.
- Regenerative veterinary medicine: Application of mesenchymal stem cells (MSCs) in pathologies of veterinary species, with special interest in the horse and the locomotive system, due to its relevance both as a patient and as an animal model.
- Molecular characterization and behavioral testing of animal models of neurodegeneration.
- Experimental therapies in animal models of neurodegeneration.
- Development of cellular models for the study of prion diseases
- Neurodegenerative diseases (ALS): murine models of neurodegenerative diseases, study of muscle (rat and rabbit model) in situ and in vitro and predictive mathematical models.
- Murine Models of Muscular or Neuromuscular Diseases: Duchenne Muscular Dystrophy, Spinal Muscular Atrophy, Kenedy's Disease
- Study of the receptors of the innate immune system (TLR/NOD) and the serotoninergic system in intestinal disorders associated with inflammatory processes
- Determination of mechanisms of action involved in physiopathological pathways of inflammatory digestive pathologies.
- Regulation of gastrointestinal motility Physiopathological pathways involved in alterations of digestive motility in infectious and inflammatory processes.
- Study of Bioactive Plant Principles in metabolic syndrome, neuroprotection, inflammatory bowel and cardiovascular diseases.
- Study of the serotonin transporter in intestinal epithelial cells.
- Physiopathological studies in murine and rabbit models and in Caco-2 cells from intestinal diseases.
- In vivo and in vitro studies related to gastrointestinal motility and its alterations in models of infection or inflammation Effects of various agents resulting from technological processing of dairy products on digestive disorders.
- Metagenomic analysis of microbiota in models of intestinal dysbiosis.
- Intestinal microbiota in nutrition and health.

- Development of cell culture under biomimetic conditions. In vitro models of renal disease. Effects of shear stress on renal tubular function and pathology
- Evaluation of nanomaterials and metals as anti-cancer drugs against colon cancer
- Experimental models of cancer
- Cellular and animal models to study mutations in mtDNA (cicbrids and complastic mice) Prenatal mitochondrial toxicity models.
- Reduced models for Numerical Simulation; Real Time Surgical Simulators
- Sheep as animal models in trauma surgery
- Sheep as a model of the ASIA Syndrome.
- Mouse ApoE-/- with model of atherosclerosis.
- Factors influencing mitochondrial function in healthy individuals: validation of control cell models for the study of mitochondrial diseases.

4.4. Course planning and calendar

The calendar established by the Veterinary Faculty for the completion and defence of the Master Dissertation will be followed. As a guide, although this schedule could change depending on the organization of the center:

- October: Information on the Master?s Dissertation and application for the assignment of mentors
- First fortnight of November: communication of the assignment of tutors and start of work. Proposal of work to the Master?s Degree Quality Assurance Committee before the date scheduled by the center.
- Four calls for the Master?s Dissertation presentation : February, July, September and December.

Due to the characteristics of the works that can be performed in this Master, it may be necessary to manipulate animals, take samples or analyze personal data, in these cases a favorable report from the CEA (Ethical Advisory Commission for animal experimentation) or CEICA (Research Ethics Committee of the Community of Aragon) will be necessary before starting the work. It is recommended to consult with the tutors if the TFM is related to any project approved by these committees, if not, it is recommended to request this permission as soon as the subject of the work has been agreed between student and tutor.

The dates of the following activities will be detailed on the Veterinary Faculty website (https://veterinaria.unizar.es/academico/):

1. Application for the assignment of mentors and approval by the Master?s Degree Quality Assurance Committee of the Veterinary Faculty.
2. Submission of the Master?s Dissertation report of examining board.
3. Presentation and defence of the Master?s Dissertation before the examining board.

Coordinator:

Inmaculada Martín Burriel email: minma@unizar.es

Tutorials:

Tutorials will be set by email.

4.5. Bibliography and recommended resources

There are no bibliographic records for this subject. Each Master's Dissertation will have a specific bibliography.