

Course:	M547 - Veterinary Nursing in Small Animals Master
Degree:	Master
Curriculum Unit:	4001005 - Investigation Methods and Techniques
Scientific field:	Veterinary Sciences
ECTS^(*):	6
Curriculum year:	1st
Curriculum semester:	1st
Frequency Regime:	Semestrial
Teacher(s):	Rute Isabel Duarte Guedes dos Santos João Rodrigo Gonçalves Goiana Mesquita
Contact hours ^(**):	TP-30; TO-20
Total work time (hours):	150

(*) - ECTS - European Credit Transfer and Accumulation System

(**) – T- Theoretical; TP- Theoretical/Practical; LP- Lab Practice; S- Seminars; I- Internships; TU - Tutorials; TO – Tutorial Orientation; O- Other (Evaluations)

Objectives / Competences

Obtain knowledge on animal experimentation with respect for well-being of animals. Know the applicable law on animal experimentation and maintenance. Know how to plan experiments with valid results, reducing costs and efforts. Know methods for treatment of experimental data. Know main sources of financing for science projects and how to make a proposal. Competencies to acquire: delineate, plan and execute research in veterinary sciences with respect to the ethical and legal requirements. Collect and treat data in order to validate and interpret results. Structure and writing of a scientific project. Present science project and request for financing.

Syllabus

Animal experimentation on veterinary sciences
Ethical considerations in animal experimentation
Reducing animal suffering on experimentation: The 3 'R' (Reduction, Refinement, Replacement).
Legal frame of animal experimentation. Bioterries (functioning rules)
Definition of experimentation goals
Types of research.
Principles of experiment design (repetition, random sampling, control).
Randomization and sampling
Statistical significance
Statistical treatment of data (descriptive, univariate, multivariate)
Statistical software packages
Publishing scientific results

Publication supports

Structure of a scientific report (experimental work, clinical cases, reviews, technical notes, short communications)

Bibliographic search

Financing research projects

Teaching methodologies and evaluation criteria

The unit will develop in contact hours, of which the theoretical and practical lessons will deal with the different themes of the model curriculum of seminars, followed by analysis of documents and submission of reports. In the chapter on data analysis, data sets will be provided and will require students to carry out statistical tests using computer applications, and the results were discussed in groups. In the hours of tutorial guidance students will develop a group project where, with support from teachers, they will plan an experiment, make its setting in terms of the funding application and survey the state of the art. It is a purpose of these classes to lead students to submit a review article in a peer-reviewed journal. For the evaluation, presented reports will be taken into consideration, as well as the practical work of statistical analysis and the group project.

Short bibliography

Kotz, D., Cals, J.W., Tugwell, P., & Knottnerus J.A. (2013). Introducing a new series on effective writing and publishing of scientific papers. J Clin Epidemiol. ;66(4):359-60. [consider series published in JCE until number XII]

Morris, T.R., 1999. Experimental design and analysis in animal sciences. CABI Publishing, UK, 208 pp.

Manly, B.F.J., 2004. Multivariate statistical methods – a primer. 3rd edition, Chapman and Hall/CRC, 208 pp.

Directiva Comunitária 2010/63: Directiva do Parlamento Europeu e do Conselho relativa à protecção dos animais utilizados para fins científicos;

Portaria 1005/92: Portaria que aprova as normas técnicas de protecção dos animais utilizados para fins experimentais e outros fins científicos;

Decreto-Lei 129/92: Experimentação Animal;

Portaria nº 1005/92: Normas técnicas de protecção dos animais utilizados para fins experimentais e outros fins científicos;

Portaria nº 466/95: Alteração aos n.ºs 8º, 23º, 48º e 49º da Portaria nº 1005/92, de 23 de Outubro.