PG VB-CAB 2024-2026
PRELIMINARY ECTS Veterinary Behaviourist

Course program	Odisee Companion Animal Behaviour and Welfare programme **Postgraduate course Veterinary Behaviourist**
Course module title	**PG CABW – VB-CAB M8: Research methods and practice**
Level of course module	• Postgraduate level 6/7
Year of study module is delivered	• Academic year: 2025-2026
Number of ECTS credits allocated to the module	• 14 credits = appr. 350 to 420 study hours
Summary of key learning outcomes of the module	1. Demonstration of knowledge and understanding of the theoretical and practical application of the principles of research methods. 2. Conducting an individual research project or dissertation on a relevant topic to the field of companion animal behaviour counselling and welfare.
Specific learning outcomes of the course module	• Students will know and understand the subjects covered in this module and be able to: 1. Demonstrate knowledge and understanding of the principles of experimental design, the principles underlying survey design and the principles of qualitative research methods for a diversity of research questions. 2. Explain the use of various forms of control and balance in the design of experimental, survey and qualitative research protocols. 3. Understand the role of single subject and case studies in the progression of science. 4. Critically assess the designs and analysis of data used in scientific articles and reports. 5. Select the appropriate statistical test for quantitative data used for the analysis of differences or correlations and be able to perform tests of statistical significance using interval, ordinal and frequency data. 6. Explain and be able to perform analysis of qualitative data using simple tests of association. 7. Explain the application of multivariate statistical methods for predicting outcomes and classify data. 8. Consider the ethical issues relating to the use of humans and non-human subjects in research 9. Conduct a research project.
Content of the module	• Problem definition and hypothesis formation. Independent and dependent variables: their identification and selection. Experimental manipulation, control and

	internal validity: the roles of random allocation, matching, and counterbalancing in independent groups, related samples and repeat measure designs. The experimental manipulation of more than one independent variable in factorial designs: the contribution of interaction effects. • The role of random sampling in behavioural research: external validity. • Quasi-experimental studies of pre-existing groups: the question of causality. The particular strengths and weaknesses of 'single-subject' designs and case studies. • Observational approaches. Survey research: sampling and the problem of non-response; descriptive versus explanatory surveys; questionnaire design including closed and open-ended questions; attitude scale construction; different questioning methods e.g. postal, telephone, email, web based, face-to-face. Methods of controlling for participants expectations and experimenter effects. Inter-rater reliability. • Critical evaluation of the methods employed to collect data in psychological research. The theory of psychological measurement: standardisation, reliability and the standard error of measurement; validity. The collection of qualitative data: observation, participant observation, techniques for the collection of verbal protocols. The analysis of qualitative data: content analysis, discourse analysis, grounded theory and protocol analysis. • The ethics of research with humans and animals research. • Descriptive and summary statistics: measures of central tendency and dispersion; skew and kurtosis; frequency distributions; graphical methods including frequency histograms and cumulative frequency plots; explanatory data analysis including stem and leaf and box and whisker displays. Probability theory: the binomial distribution (and its normal approximation). The normal distribution: z scores and areas under the curve; the sampling distribution of the sample mean. Statistical inference: significance testing (including the null and alternative hypothesis, type 1 and type 2 errors, significance level, power and sample size); effect size and confidence intervals. • z-test and t-test of means for single sample, independent samples and related sample designs. Confidence intervals: for the population mean; for the difference between two population means. Mean and error bar graphs. Non-parametric alternatives to t-tests: the sign test; Wilcoxon matched-pairs signed ranks test; Mann-Whitney test. Tests of proportions: chi-squared tests for goodness of fit and for contingency tables. • Bivariate correlation and linear regression: scatterplots; Pearson's correlation coefficient; partial correlation; the

	significance of a correlation coefficient; the linear regression equation and its use in prediction; the accuracy of prediction; Spearman's and Kendall's rank order correlation coefficients. • The analysis of variance: one factor independent and repeated measures designs; two factor independent, repeated measures and mixed designs; main effects and interaction effects (including graphical presentation); planned (including trend) comparisons; the Bonferroni correction; post hoc comparisons (including choice between methods); the analysis of simple effects. • Non-parametric alternatives to one factor analyses of variance: Krusal-Wallis, Friedman and Cochran's Q tests. The choice of an appropriate statistical analysis: the issue of level of measurement (nominal, ordinal, interval and ratio scales); test assumptions (eg normality, homogeneity of variance, linearity); transformations of the dependent variable in an attempt to meet assumptions; robustness; power efficiency.
Planned learning activities and teaching methods	• Distance learning consisting of: ○ Recorded lectures ○ Reading list ○ Group activities ○ Conducting research under supervision by tutor(s)
Assessment methods and criteria	• Formative assignment • Summative assignments • Oral exam
Essential study materials	• Course materials provided by the lecturers • SPSS
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