Curricular Unit Form

Updated On	2022/01/06
Curricular Year / Period	2021/22 / S1
Course	Equinicultura
Curricular Unit	Matemática e Estatística
Language(s) of Instruction	Português

ECTS/tempo de trabalho (horas)

ECTS	Total	Horas de contacto semestral								
		T	TP	PL	S	TC	E	O	OT	EC
6	160		64	32						

T - Theoretical; TP - Theoretical and practical; LP - Laboratory Practice; S - Seminar; TG - Tutorial guidance; FW - Fieldwork; T - Training; ; EC - Clinical teaching; O* - Other hours typified as Clinical Training under the Directive 77/453/EEC of June 27, adapted by Directive 2005/36/EC.

Teacher in charge (GDPR consent)

[complete name, email]

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Prerequisites

[Curricular Units that must precede and specific entry competences]

There is not.

Learning outcomes

[Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]

The curricular unit of Mathematics and Statistics is intended, on the one hand, to support mathematics, as an instrument of analysis, understanding and development of solutions for the subjects of the remaining curricular units of the study plan of the course and, on the other, to enable the student to: (i) use statistical methods to summarize data and perform exploratory analysis of them; (ii) understand the conditions underlying the applicability, validity and limits of the theoretical models used for statistical analysis; (iii) analyze the results obtained; (iv) distinguish between cause-effect relationships and relationships of statistical association between variables; (v) acquire basic research skills and critical reading of technical and scientific documentation; (vi) know how to import, store, process, analyze and present data using the spreadsheet as a universal tool.

Syllabus

Introduction: Approach to the spreadsheet tool; General aspects; Data entry; Graphics; Introduction of formulas and functions; Matrices and systems of linear equations: General considerations about matrices; Matrix properties; Matrix Algebra; Matrix transposition; Linear dependence and independence; Determinant of a matrix; Matrix inversion; Solving systems of equations. GAUSS method; Study of real functions of real variable: Concept of function; Graphical representation and interpretation of functions; Derivation of functions; Maximum and minimum;
Partial derivatives; Primitivation of functions; Integration of functions. Calculation of areas. Introduction to descriptive statistics: Definition of statistics; Population or statistical universe; Objective of statistics; Statistical sample; Descriptive and inductive statistics; Descriptive Statistics: Discrete and continuous variables; Frequency distribution; Graphical representation of frequency distributions; Measures or indicators. Central tendency or location measures. Dispersion measures; Correlation and simple linear regression. Random variables: Discontinuous or discrete random variables; Continuous random variables; Theoretical probability distributions. Discrete distribution. Continuous distributions. Statistical Inference: Data analysis, inference and confidence intervals; Estimation; Statistical decision theory, hypothesis testing and significance. Experimental Design: Basics of experimental design; Analysis of variance; Multiple comparison of means.

Teaching methodologies (including assessment)

[Specify the types of assessment and the weights and evaluation criteria]

1 - Teaching methodologies

Theoretical classes with exposure of the contents and subsequent exploration through solved examples and exercises to be solved in class and / or at home. Theoretical-practical classes with explanation and direct exemplification, as well as resolution of example sheets. Group work.

2 - Period assessment

Two interim exams and / or exam (40% + 50% = 90%)
. Follow-up work and / or mini-tests (10%)
Important notes about the evaluation:
To pass the curricular unit by frequency, all students must present a

	positive arithmetic mean in the evaluation elements, however, it cannot have a score below 7.5 on either frequency. If the student does not fulfill the previous conditions, for approval to the course unit, he / she will have to propose an exam. . All students must have a minimum of 75% attendance in all teaching-learning activities in person **3 - Examination assessement** In exam, for the purpose of approval, the student will have the option of answering only the part of the subject in which he did not obtain a score equal to or higher than 7.5 values in the respective frequency. These conditions will be valid for the exams of normal season, of appeal season and of special seasons, of the present academic year. With regard to the practical component (mini-tests; class questions, among others), this has an optional character, and its evaluation will only be considered if it benefits the student. Thus, for students who have not done practical work, or whose performance has not been as desired, it implies that partial weighting (of frequencies or exams) will be as follows: - 1st frequency / part 1 - mathematics 45% -2nd frequency / part 2 - statistic 55% With regard to the exams, the student may choose to take only the part in which he / she did not obtain a minimum grade (of frequency or previous exams) or take the entire exam. In case the student chooses to take the complete exam (two parts) the classifications of previous moments will not be taken into account In exam, for the purpose of improving the grade, the student will always have to answer the whole subject. To carry out the tests, students must have a student card, or other official photo identification document, and writing material. All students must have a minimum of 75% attendance in all teaching-learning activities in person It is strictly forbidden for students to use the evaluation tests of graphic calculators, mobile phones, smart watches, tablets and the like, immediately implying the annulment of the test. The use of a scientific calculator is only permitted in part B.
Bibliography	**1 - Main Bibliography** SOUSA, Maria José. Domine a 110%. Excel 7 para Windows. MOURATO, Joaquim (1997). Estatística. Textos de apoio às aulas. ESAE CARVALHO, Adelaide. Exercícios resolvidos com o EXCEL XP CALLEGARI-Jacques, S.M. (2003). Bioestatística : princípios e aplicações. 1ª edição. Artmed Editora AS. Porto Alegre Brasil HOFMANN, Rodolfo, e VIEIRA, Sónia. Estatística experimental, Atlas REIS, Elisabeth, Estatística Descritiva, Edições Sílabo. MURTEIRA, Bento J., e BLACK, George H., Estatística Descritiva, McGraw-Hill OLIVEIRA, J. Tiago, Probabilidades e Estatística (conceitos, métodos e aplicações), Vol. I e II, McGraw-Hill **2 - Complementary Bibliography**
Special Situations [Students with special status]	**1 - Period assessment - Students with special status** The above conditions apply, with the exception of attendance, in which the student has no mandatory minimum limit. **2 - Examination assessement - Students with special status** The previous conditions apply to the main one of attendance, in which the student has no mandatory minimum limit. Special support is not defined, leaving the teacher in each situation in particular.