

Course Unit	Informatics and Statistics		Field of study	Mathematics and statistics/Informatics	
Bachelor in	Biology and Biotechnology		School	School of Agriculture	
Academic Year	2023/2024	Year of study	1	Level	1-1
Type	Semestral	Semester	1	ECTS credits	6.5
Code	9029-782-1103-00-23				
Workload (hours)	175,5	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Sérgio Alípio Domingues Deusdado

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Explore the full potential of computer processing by providing it with knowledge and practice in some tools.
2. Integrate in the current context of information technology, Internet, multimedia, intranet, extranet, e-learning, remote databases, and so on.
3. Productive use of tools for data analysis and processing in order to ensure its autonomy in the organization, extraction and validation of knowledge of the data arising from scientific research.
4. Use some reference tools for apply basic concepts of statistics in concrete situations.
5. Formalize and implement correctly problems involving the result of random experiences.
6. Do a correct sampling. Characterize data. Apply statistic methods. Interpret the result

Prerequisites

Before the course unit the learner is expected to be able to:
Not applicable

Course contents

Computers basic learning; Operating systems, Internet, Computer software; Application for the analysis and statistical processing of data ; Descriptive statistics; Probability theory; Random variables; Probability Distribution Functions.

Course contents (extended version)

1. Computers basic learning
 - Basic concepts; Definition of computer systems, computer architecture and working.
 - Binary encoding.
2. Operating systems
 - OS constituents, Types, the OS functions.
 - File system maintenance, utilities and communications.
3. Internet
 - Historical notes; TCP/IP and DNS; Services (e-mail, www, ftp, chat and other services);
 - Search of Information; Security, E-learning.
4. Computer software
 - Microsoft Excel; Formulas and functions; Databases; Drafting and editing graphics; Macros; Forms.
5. Application for the analysis and statistical processing of data
 - Data entry and definition of variables. Descriptive statistical analysis of data.
 - Correlations; generation and formatting of charts.
6. Descriptive Statistics
 - Introduction
 - Statistics objectives
 - Types of data and measurement uncertainties
 - Population and sampling
 - Statistics and cenral tendency measures
 - Dispersion measures
 - Graphical presentation of the frequency table
 - Other statistics
7. Probability Theory
 - Basic notions
 - Probability
 - Frequency distributios
 - Random variables
8. Probability Distribution
 - Introduction
 - Discrete distributions
 - Hypergeometric Distribution
 - Binomial distribution
 - Poisson distribution
 - Random variables
 - Continuous distributions
 - Gauss distribution

Recommended reading

1. Marty Matthews, Windows 7, Verlag Dashofer, ISBN 9789896420741
2. Rui Guimarães; J. Cabral - Estatística Mac Graw Hill - 1999 Louis D'Hainaut - Conceitos e Métodos da Estatística. Vol. I Ed. F. C. G.
3. Microsoft Office 2010 – Para Todos Nós, Maria João Sousa, Sérgio Sousa, FCA - Editora Informática, ISBN 978-972-722-681-8
4. Microsoft Excel 2007, Carlos R. G. Carvalhal, Porto Editora, ISBN 978-972-0-06642-8
5. Exercícios de Excel 2010, Paulo Capela Marques, FCA–Editora Informática, ISBN 978-972-722-678-8

Teaching and learning methods

Expositive, demonstrative and interactive

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
- Practical Work - 50% (Minimum grade 7 in the written exam to validate the practical work)
- Final Written Exam - 50%

Language of instruction

Portuguese

Electronic validation			
Sérgio Alípio Domingues Deusdado	Carlos Manuel Mesquita Morais	Altino Branco Choupina	Paula Sofia Alves do Cabo
17-01-2024	18-01-2024	19-01-2024	23-01-2024

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