INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Data Analysis			Field of study	Mathematics								
Master in	Management - Business Management			School	School of Technology and Management								
Academic Year	2022/2023	Year of study	1	Level	2-1	ECTS credits	6.0						
Type	Semestral	Semester	1	Code	5009-516-1105-00-22								
Workload (hours)	162	Contact hours	T -	TP 42	PL -	TC -	S 3	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): Paula Odete Fernandes

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Apply research methods for data collection, ability to prepare and analyse quantitative and qualitative information;
2. Develop and to understand the rules of the questionnaire design;
3. Apply the appropriate statistical techniques to the information collected;
4. Analyze and to interpret the results of the application of statistical methods, using the statistical software;
5. Interpret, to formalize and to solve organizational problems with support of statistical tools and data analysis;
6. Develop logical, critical and analytic reasoning in a creative way.

Prerequisites

Before the course unit the learner is expected to be able to:
1. Apply concepts of real analysis and statistics;
2. Use computational tools and browsers;
3. Be fluent in both oral and written English.

Course contents

Steps of the methodological procedure. Data collection methods. Constructing the questionnaire. Building the database supported by statistical software. The data analysis: Applying the statistical methods.

Course contents (extended version)

1. Steps of the methodological procedure and data collection methods
   - Steps of the methodological procedure and research proposal
   - Types of research
   - Sources of information
   - Tools and methods for data collection
   - Sampling methods. Sample size
2. Constructing the questionnaire
   - Preliminary study
   - Questionnaire design
   - The questions: scales of measurement
   - The questions: types and problems
   - Building the questionnaire for measure the latent variables
   - Prepare the final questionnaire
3. Building the database
   - General vision of statistical sofware
   - Editing and manipulating files
   - Data handling and presentation
   - Transforming variables
   - Additional exercises using the statistical software
4. The data analysis: Applying the statistical methods
   - Univariate and bivariate analysis
   - Multivariate analysis
5. Seminars for acquiring other skills.

Recommended reading

1. Beall, A. (2019). Strategic Market Research: A Guide to Conducting Research that Drives Businesses (3rd Edition). Beall Research Inc.
2. Keller, G. (2017). Statistics for Management and Economics (11th Edition). Cengage Learning. ISBN-13 : 978-1337093453
3. Machado, I. , Costa, J. , & Rodrigues, A. (2014). O essencial do questionário: preparação, recolha e tratamento de dados em SPSS. Porto: IPAM. ISBN: 978-989-98442-6-1
4. Maroco, J. (2018). Análise Estatística com a utilização do SPSS (7. ª edição). Ed. Report Number.
5. Sarstedt, M. , & Mooi, E. (2019). A Concise Guide to Market Research: The Process, Data, and Methods Using IBM SPSS Statistics (3rd Edition). Springer, Berlin, Heidelberg. ISBN: 978-3-662-56706-7

Teaching and learning methods

Theoretical-practical classes with audiovisual resources. This course is based on "learning by doing", involving active participation of the student via interventions, individual and team work and problem solving. Real-life case studies are incorporated into lectures to provide opportunities for students to apply theory into practice in a real-life context.

Assessment methods

1. Alternative A - (Regular, Student Worker) (Final, Supplementary)
   - Practical Work - 50%
   - Final Written Exam - 50% (Minimum score: 7 out of 20 values.)
2. Alternative B - (Regular, Student Worker) (Special)
   - Final Written Exam - 100%

Language of instruction

1. Portuguese
2. English

Electronic validation

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02-10-2022	28-10-2022	05-11-2022