Course	DataScience and Artificial Intelligence					
Subject	Analysis, Communication, and Visualization of Information					
Academic year	2023-24	Curricular year	2nd	Study period	1st semester	
Type of subject	Clique	Student workload (H)	Total: 168	Contact: 60	ECTS	6
Professor(s)	Paulo Vieira					

☐ *Area/Group Coordinator* ☐ *Head of Department*	*(select)*	Miguel Salgado

COMPLETED

1. LEARNING OBJECTIVES

(1000 characters max)

> *1. Understanding the human perception system*

> *2. Understand how to create and narrate stories using data*

> *3. Understand the entire data visualization and communication process.*

2. PROGRAMME

(1000 characters max)

> *1. Human perception and data visualization*

> *1-1: The History of Data Visualisation (Dataviz)*

> *1-2: Current tools for Dataviz*

> *1-3: Models of human perception (e.g. gestalt psychology)*

> *1-4: Metrics for evaluating the effectiveness of Dataviz*

> *2. Working fast while saving thought*

> *2-1: The Spreadsheets methodology*

> *2-2: Analyzing, systematizing and visualizing data in Python and R*

> *2-3: Communication processes: concepts, methods and techniques*

> *2-4: Data Storytelling: concepts, methods and techniques*

> *3. Communication process, case studies*

> *4. Data storytelling, case studies*

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

(1000 characters max)

Content 1 is consistent with objective 1

Content 2 is coherent with objective 1,2,3

Content 3 is coherent with objective 2,3

Content 4 is coherent with objective 2,3

4. MAIN BIBLIOGRAPHY

1. Kalilur Rahman. (2023). Python Data Visualization Essentials Guide. bpb publications. ISBN-10, 9389845645.

2. Marco Bertamini, Michael Kubovy. (2018). Human Perception. Routledge, Taylor & Francis Group. ISBN 13: 978-0-815-38954-5. ISBN 13: 978-1-315-15628-8.

3. Robert Sternberg. (2008). Psicologia cognitiva 4 Edição. Artmed. ISBN 978-85-363-1115-9

4. Dona M. Wong (2010). The Wall Street Journal Guide to Information Graphics: The Dos and Don'ts of Presenting Data, Facts, and Figures. Publisher W. W. Norton & Company. ISBN= 0393072959. ISBN 9780393072952.

5. Yau, N. (2011). Visualize this: the Flowing Data guide to design, visualization, and statistics. John Wiley & Sons. ISBN-13: 978-0470944882. ISBN-10: 0470944889.

6. Miguel Rocha, Pedro Ferreira. (2017). Análise exploratória de dados com R. Editora: FCA. ISBN: 978-972-722-863-8.

7. Cole Nussbaumer Knaflic. (2015). Storytelling with Data: A Data Visualization Guide for Business Professionals. ISBN: 978-1-119-00225-3.

8. David Alexander Lillis. (2014). R Graph Essentials. Packt Publishing Ltd. ISBN 978-1-78355-455-3.

9. Igor Milovanović Dimitry Foures Giuseppe Vettigli. (2015). Python Data Visualization Cookbook Second Edition. Packt Publishing Ltd. ISBN 978-1-78439-669-5.

10. Introduction To R. https://cran.r-project.org/doc/manuals/r-release/R-intro.html

11. Google Cloud. https://developers.google.com/sheets/api/guides/concepts?hl=pt-br.

12. Meirelles, I. (2013). Design for information: an introduction to the histories, theories, and best practices behind effective information visualizations. Rockport publishers.

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

(1000 characters max)

This course will use the expository method of content in interaction, with the students, through demonstrative practical analysis orientated towards problem-solving.

Continuous assessment: 40% practical work + 60% assessment test
Other assessment periods: assessment test

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

(3000 characters max)

1. lecture is consistent with the objectives due to the need to present the theoretical theoretical content to the students

2. Interactive lectures are consistent with the objectives because student/teacher interaction helps students to
learning of concepts as well as introducing new ideas, perspectives and solutions.

3. Problem-solving is consistent with the objectives because the application of theoretical content to practical exercises of realistic inspiration, related to the subject taught, consolidates the subject given, emphasizing know-how.

7. OTHERS

No considered

DELETE SECTION 9. IN COMPLETED SUBJECT DESCRIPTION
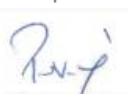
DATE

February 2024

SIGNATURES

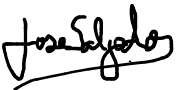*Professor(s), Area/Group Coordinator or Head of Department signatures*

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