1. BASIC DETAILS

Course	Big Data and Data Processing
Degree	Bachelor's Degree in Advertising
School/Faculty	Social and Communication Sciences
Year	3º
ECTS	6
Type	Optional
Language(s)	Spanish
Delivery Mode	On campus
Semester	S1

2. INTRODUCTION

Big Data and Data Processing is an optional course taught in the third year of the Bachelor's Degree in Advertising. It covers the role played by data in the field of advertising communication, analysing concepts such as Big Data, Open Data, Business Intelligence and Data Science, as well as the various techniques used in capturing, processing and analysing large datasets.

Furthermore, the different tools used in the creation and interpretation of data visualization and interactive mapping are also studied.

3. SKILLS AND LEARNING OUTCOMES

Key skills (CB, by their acronym in Spanish):

CB2: Students can apply their knowledge to their work or vocation in a professional manner and possess the skills which are usually evident through the forming and defending of opinions and resolving problems within their study area.

CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

Transversal skills (CT, by their acronym in Spanish):

CT2: Independent learning: Skillset for choosing strategies to search, analyse, evaluate and manage information from different sources, as well as to independently learn and put into practice what has been learnt.

CT3: Teamwork: Ability to integrate and collaborate actively with other people, areas and/or organizations to reach common goals.

CT4: Written/spoken communication: Ability to communicate and gather information, ideas, opinions and viewpoints to understand and be able to act, spoken through words or gestures or written through words and/or graphic elements.

CT5: Analysis and problem-solving: Be able to critically assess information, break down complex situations, identify patterns and consider different alternatives, approaches and perspectives in order to find the best solutions and effective negotiations.

CT8: Entrepreneurial spirit: Ability to take on and carry out activities that generate new opportunities, foresee problems or lead to improvements.

CT9: Global mindset: Be able to show interest in and understand other customs and cultures, be aware of your own biases and work effectively as part of a global community.

Specific skills (CE, by their acronym in Spanish):

CE25: Ability to describe the processes involved in the use of technology, estimate the resources required to efficiently design a communication product and defend the proposal made.

CE26: Ability to identify and criticise the procedures established in the use of technology, as well as plan the way in which it should be used.

CE27: Ability to use communication technology appropriately, discovering new uses of existing communication technology and predicting its ephemeral nature to be updated.

Learning outcomes (RA, by their acronym in Spanish):

RA1: Know the different methods used to gather and analyse data.

RA2: Identify the consequences of Big Data on data processing and storage.

RA3: Analyse large datasets to transform them into relevant information from a significant point of view.

RA4: Create and interpret interactive data visualizations.

The following table shows how the skills developed in the course match up with the intended learning outcomes:

Skills	Learning outcomes

CB4, CT2, CT3, CT5, CT8, CE25 and CE26	RA1
CB4, CT4, CT5, CT8 and CE25	RA2
CB2, CT3, CT5, CT8, CT9 and CE26	RA3
CB4, CT2, CT4, CT8, CT9, CE26 and CE27	RA4

4. CONTENTS

UA1. Introduction to data culture. Use in the field of communication.
UA2. Data gathering methods.
UA3. Storage and processing of large datasets.
UA4. Data analytics.
UA5. General principles of data visualization.

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Lecture
- Case studies
- Collaborative learning

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On-campus:

Learning activity	Number of hours
Lectures	24
Asynchronous lectures	6
Case study analysis	15
Problem-solving	15

Oral presentations	15
Drawing up reports and written work	15
Group tutorials	10
Independent working	50
TOTAL	150

7. ASSESSMENT

The assessment methods, plus their weighting in the final grade for the course, are as follows:

On-campus:

Assessment system	Weighting
On-campus knowledge tests	40%
Written reports	25%
Case study/problem scenario	25%
Performance observation	10%

On the Virtual Campus, when you open the course, you can see all the details of your assessment activities and the deadlines and assessment procedures for each activity.

8. BIBLIOGRAFÍA

We recommend that you consult the resources below:

UA1

- Harari, Y. N. (2018). 21 lecciones para el siglo XXI, Barcelona, Penguin Random House.
- Llaneza, P. (2019). Datanomics, Madrid, Ediciones Deusto.
- Madden, S. (2012). From databases to big data. IEEE Internet Computing, 16(3), 4-6.
- Manovich, L. (2005). El lenguaje de los nuevos medios de comunicación. Barcelona, España: Ediciones Paidós. Col. Paidós Comunicación.
- Mayer-Schönberger, V. y Cukier, K. (2015). Big data: la revolución de los datos masivos. Madrid, España: Turner.

UA2 y UA3

- Kimball, Ralph and Caserta, Joe. (2007). The Data WarehouseETL Toolkit: Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data, Wiley. ISBN-13 978-0764567575

- The Data WarehouseETL Toolkit: Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data
- Padial Solier, Antonio. (2017). Aprende SQL en un fin de semana: El curso definitivo para crear y consultar bases de datos, ISBN 9781520363462
- Indurkhya, N., and Damerau, F. (2010). Handbook Of Natural Language Processing, 2nd Edition. Boca Raton, FL: CRC Press. ISBN 978-1-4200-8592-1

UA4

- Grus, J. Data Science from Scratch. O'Reilly Media.
- Foreman, J.W. Data Smart: Using Data Science to Transform Information into Insight. Wiley.
- MySQL Reference Manual. https://dev.mysql.com/doc/refman/5.7/en/

UA5

- Bertin, J. (1981). Graphics and Graphic Information Processing. Berlin, Alemania: de Gruyter.
- Cairo, A. (2016). The Truthful Art: Data, charts, and maps for communication. USA: New Riders.
- Meirelles, I. (2013). La información en el diseño. Barcelona, España: Parramón.
- Nussbaumer Knaflic, C. (2015). Storytelling with data: a data visualization guide for business professionals. New Jersey, USA: John Wiley & Sons, Inc.
- Wang, L., Wang, G., y Alexander, C. A. (2015). Big Data and Visualization: Methods, Challenges and Technology Progress. Digital Technologies, 1(1), 33-38.