

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ECONOMICS, BUSINESS AND INTERNATIONAL STUDIES		
ACADEMIC UNIT	DEPARTMENT OF ECONOMICS		
LEVEL OF STUDIES	M.Sc.		
COURSE CODE	ΕΔΟΠΣΕΜ06	SEMESTER	2nd SEMESTER
COURSE TITLE	DATA VISUALIZATION FOR DECISION-MAKING		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
LECTURES		3	2
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	GENERAL BACKGROUND		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

Upon completion of the thematic unit, students will acquire knowledge, skills, and responsibility/autonomy as follows:

Knowledge

- Integration of Big Data from the organization's Information Systems
- Transformation of Data into Information
- Creation of Dashboards for presenting Information using data management/visualization applications (e.g., Microsoft Power BI, M/S Excel, etc.)

- **Decision-making using Information**

Skills

- **Data Analysis**
- **Creation of information to present trends in the organization's environment**
- **Research capability in designing and applying best practices based on information**
- **Communication and storytelling with a focus on the organization's data and information**

Responsibility & Autonomy

- **By attending the course, students are expected to be able to manage complex data within organizations and autonomously and responsibly transform it into information. In this way, they will be able to contribute to academic knowledge and practice, while also measuring performance in relation to organizational outcomes.**

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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Key Competencies Developed

- **Effective data and information management using appropriate technologies**
- **Informed decision-making through clear communication and the use of data dashboards**
- **Adaptability to new situations through impactful data visualization**

(3)SYLLABUS

Unit 1

- The Science of Management and Decision-Making
- Definition of Data
- Types of Data
- Structured, Semi-Structured, and Unstructured Decisions
- Scientific Management, Strategic Planning & Programming
- Exercises & Discussion

Unit 2

- Databases
- Database Management
- Business Data for Decision-Making
- Decision-Making Models
- Management Information Systems (MIS)
- Exercises & Discussion

Unit 3

- Data Visualization using Microsoft Excel
- Creating Key Performance Indicators (KPIs) within Pivot Tables
- Data Presentation through Pivot Tables
- Exercises & Discussion

Unit 4

- Data Visualization using Microsoft Power BI
- Connecting Business Data to Microsoft Power BI
- Creating and Managing Relationships via Primary Keys (One-to-Many)
- Data Cleaning for Decision-Making within the Application
- Data Refreshing and Preparing a Data Dashboard
- Creating Charts and Tables
- Exercises & Discussion

Unit 5

- Techniques for Effective Information Presentation
- Storytelling Techniques for Data Narratives
- Exercises & Discussion

Unit 6

- **DATATHLON:** Group Project on Data Visualization for an Organization
- Presentation of Group Decisions and Evaluation

(4)TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Distance Learning	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	• Use of ICT (Information and Communication Technologies) in teaching • Laboratory exercises focused on solving complex decision-making problems within organizations • Use of the eClass platform for communication with students and distribution of research materials for coursework	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	10
	Case Study Responses	7
	Study & Analysis	15
	Data Management and Information Visualization Project	10
	Exams	3
	Course total	45 hours
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Student evaluation is conducted in Greek and includes a written examination as well as assessment based on group projects and critical thinking, as demonstrated through active participation during lectures. • Group Project: 80% • Lecture Participation: 20% The written exam consists of a task requiring students to present information using data visualisation tools and storytelling techniques to support decision-making. Assessment criteria are communicated to students during the first lecture.	

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(5)ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

1. Hyman, J. A. (2022). *Microsoft Power BI For Dummies*. John Wiley & Sons.
2. Silva, R. F. (2018). *Power BI-Business Intelligence Clinic: Create and Learn*. Independently published.

- *Related academic journals:*