1. BASIC INFORMATION

Course	PRACTICAL RESEARCH - DIGITAL TOOLS - LAB
Degree program	Economics Degree
School	Economic, Business and Communication Sciences
Year	2º
ECTS	6
Credit type	Compulsory
Language(s)	English
Delivery mode	In person
Semester	S3
Academic year	2025-2026
Coordinating professor	Carlos Mur

2. PRESENTATION

In this course, students will develop essential practical and technological skills for economic data analysis using advanced digital tools. They will learn to identify and apply algorithms, patterns, and trends in centralized and decentralized data, using software such as Microsoft Excel for spreadsheets, Microsoft Access for databases, Microsoft Power BI for data analysis and visualization, and Microsoft Project for project management. Additionally, they will be introduced to artificial intelligence tools such as Perplexity, Claude, Anthropic, Gemini, and ChatPDF to enhance productivity and data analysis.
Students will be able to extract valuable insights from large datasets by exploring and analyzing key performance indicators (KPIs), developing metrics that demonstrate productivity improvements within organizations. They will also learn to segment and organize big data for effective interpretation and use in economic decision-making. The course will provide competencies in programming and the development of economic-financial management projects, applicable at both national and international levels.
Finally, the course includes an introduction to digital infrastructures such as the Internet of Things (IoT) and the digital divide, as well as the empowerment of society through e-consumers and electronic money. Students will also explore digital competencies in economics, including the use of e-wallets and cryptocurrency storage systems, and apply machine learning techniques aimed at economic analysis and policy formulation. By the end of the course, students will be prepared to face the challenges of the digital economy and apply emerging technologies in various business contexts.

3. COMPETENCIES AND LEARNING OUTCOMES

KNOWLEDGE:

CON03. Recognise centralised and decentralised economic data algorithms, patterns, trends and systems.

- Identify indicators of the development of the physical, service and safety infrastructures underpinning the economy.
- Define indicators that portray the evolving role of the economy in citizens' lives. Access, use and exploitation of digital technologies.

- Describe new business models as drivers of innovation and other emerging technologies in the economy.

SKILLS:

HAB03. Extract information from the analysis of large amounts of data by exploring and identifying algorithms, patterns and centralised and decentralised data systems.

- Develop measurement systems (metrics) to demonstrate the improvement in organisations' productivity through the use of ICTs (job market, growth and productivity)
- Use programming software to automate measurement processes and economic models.
- Segment data (big data) for use, organisation, analysis and interpretation.

COMPETENCIAS/COMPETENCIES:

- COMP07. Programming and developing national or international economic-financial management projects.
- COMP10. Recognise technological and innovation strategies, as well as technological analysis tools and the technological capabilities of the company.
- COMP12. Manage the management tools available in the area of administration and finance in international business environments.

4. CONTENT

1) Infrastructure: Internet of Things (IoT) and the digital divide.
2) Empowering Society: E-consumers and electronic money.
3) Digital Competencies in Economics: E-wallets and electronic currency storage systems. Transactions.
4) Machine Learning for Economic Analysis and Policy Formulation.

5. TEACHING-LEARNING METHODOLOGIES

- Masterclass
- Case study.
- Cooperative learning.
- Workshop-based learning.
- Project-based learning.
- Simulation environments.

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours

Master Classes	12
Practical application seminars	18
Case studies	14
Oral presentation of work	4
Preparation of reports and written papers	16
Research and projects	8
Independent work	56
Debates and colloquiums	8
Face-to-face assessment tests	12
TOTAL	**150**

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

Assessment system	Weight
In-person assessment tests	50%
Problem case	30%
Research and projects	10%
Lab/workshop practice notebook	10%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 5.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

7.2. Second exam period

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of 5.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

The student must deliver the activities not successfully completed in the first exam period after having received the corresponding corrections from the professor, or those that were not delivered in the first place.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Activity 1 -2	Week 1 - 7
Activity 2 – 4	Week 8 - 10
Activity 3 – 5	Week 3 - 15
Exam	Week 16 -18

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAPHY

The following is a recommended bibliography:

- Sweeney, D. J., Williams, T. A., & Anderson, D. R. (2019). Estadística para administración y economía(14ª ed.). Cengage Learning.
- Levine, D. M., Stephan, D., Krehbiel, T. C., & Berenson, M. L. (2017). Estadística: Teoría y aplicaciones(7ª ed.). Pearson Educación.Rumsey, D. (2020).
- Statistics For Dummies (3rd ed.). Wiley.
- Field, A. (2018). Discovering Statistics Using IBM SPSS Statistics (5th ed.). Sage Publications.

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by means of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.

4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:
orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.