

SYLLABUS

Field: Economic Sciences

Branch: Economic Sciences

Specialty: Economy, finance, and markets

Semestre : Third semester

School year : 2025/2026

Identification of the teaching subject

Titled: Data Analysis

Teaching unit: UE Methodology

Number of Credits: 03

Coefficient : 03

- **Total weekly hourly volume: 42**
- Course (number of hours per week): 01h30
- Tutorials (number of hours per week): 01h30

Head of teaching subject

Last Name, First name, Rank: Bennihi Aymen Salah, MCB

Office location (Block, Office): I don't have one

Email : bennihi.aymen@gmail.com

Tel (Optionnel): 0663509470

Course time and location: / Room: Monday at 10h00 to 11h30 / SC 01

Description of the teaching subject

Prerequisites:

- Statistics
- Linear Algebra

Learning objectives:

- To understand different types of data and their characteristics.

- To learn how to use SPSS software for data analysis.
- To master dimension reduction techniques, such as principal component analysis and factor analysis.
- To apply classification methods to categorize data.
- To comment on results obtained
- To take decision based on the results

Course content:

Assessment Methods

The nature of the assessment:	Percentage weightings:
Exam	60%
Mini-tests	
Tutorials	
Practical Assignments	15%
Personal Project	15%
Group Work	
Field Visits	
Attendance	10%
Other	
Total	100%

References & Bibliography

Textbook (Main Reference) :		
R for Data Science, 2nd Edition	Hadley Wickham, Garrett Grolemund	O'Reilly Media 2023
Ggplot2: Elegant Graphics for Data Analysis-2nd Edition	Hadley Wickham	Springer 2016
R for Data Science, 2nd Edition	Hadley Wickham, Garrett Grolemund	O'Reilly Media 2016
R Graphics Cookbook 2nd Edition	Winston Chang Johnson	O'Reilly Media 2018

Course Schedule

Week	Course Title	Date
Week 1	<ul style="list-style-type: none"> Over view of the module and evaluation modalities 	22/09/2025
Week 2	<ul style="list-style-type: none"> Define data and its types (quantitative, qualitative, categorical, numerical) Discuss the importance of data cleaning and preparation Introduce the basics of SPSS software and R language 	29/09/2025
Week 3	<ul style="list-style-type: none"> Learn the different graphs Learn how to chose the correct graphs for the data 	06/10/2025
Week 4	<ul style="list-style-type: none"> Introduction to PCA Mathematical background 	13/10/2025
Week 5	<ul style="list-style-type: none"> Eigen values Eigen vectors example 	20/10/2025
Week 6	<ul style="list-style-type: none"> Introduction to FA Why we use FA 	27/10/2025
Week 7	<ul style="list-style-type: none"> Mathematical background of the method example 	03/11/2025
Week 8	<ul style="list-style-type: none"> Introduction to CA The goal behind using CA Mathematical background example 	10/11/2025
Week 9	<ul style="list-style-type: none"> Introduction to CA The goal behind using CA 	17/11/2025
Week 10	<ul style="list-style-type: none"> Discuss the theory and concepts of discriminant analysis Explain how to conduct stepwise discriminant analysis Evaluate the classification accuracy of the model 	24/11/2025

Week 11	<ul style="list-style-type: none">• Mathematical background• example	01/12/2025
Week 12	<ul style="list-style-type: none">• Time series analyses	06/12/2025
Week 13	<ul style="list-style-type: none">• Time series analyses	13/12/2025
Week 14	<ul style="list-style-type: none">• Final exam	20/12/2025