UNIVERSITE BADJI MOKHTAR-ANNABA
FACULTE TECHNOLOGIE
COMMON TEACHING IN ENGINEERING SCIENCE
DEPARTMENT

جامعة باجي مختار – عنابـــــــــة
كلية التكنولوجيا
قسم التعليم المشترك في علوم المهندس

SYLLABUS

Field: Mathematics and Computer Science
Program: Computer Science
Specialization: Data Science
Semester: S1

Academic Year: 2025-2026

Course Identification

Title: Foundations of Data Science
Teaching Unit: Unit UEM531 – Methodology
Number of Credits: 3
Coefficient: 02
Total Weekly Hours:

- **Lecture (hours per week):** 1 h 30 min
- **Tutorials (hours per week):** /
- **Practical Work (hours per week):** 1 h 30 min

Course Coordinator

Name, First Name, Title: Dendani, Bilal, MCB
Office Location (Block, Room): /
Email: bilal.dendani@univ-annaba.dz
Phone (Optional): 0791481699/ 0659717649

Schedule and Locations of Lectures and Practical Work:

- **Lecture:** Thursday at **09:30** in room **H2**
- **Practical Work (TP):**
    o Thursday at 11:30 in Salle 03.
    o Thursday at 14:00 in Salle03.

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Course Description

Prerequisites: Basic knowledge of mathematics, statistics, and programming.

General Objective of the Course:

- Present the foundations and key concepts of data science.

Learning Objectives:

- Learn techniques for data cleaning and preparation.
- Develop practical skills in using the Python programming language for data science.
- Become familiar with commonly used tools and frameworks such as Pandas and NumPy.
- Learn to visualize data clearly and effectively.

Course Content

Chapter 1: Introduction to Data Science
Chapter 2: The Data Science Process
Chapter 3: Tools and Technologies Used in Data Science
Chapter 4: Basic Principles of Linear Algebra
Chapter 5: Linear Models
Chapter 6: Advanced Linear Algebra
Chapter 7: Numerical Methods in Data Science

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Evaluation Methods

Assessment Methods	Weighting (%)
Exam	60 %
Quizzes / Mini-tests	
Tutorials	
Practical Work	40%
Individual Project	
Group Work	
Field Trips	
Attendance (Presence / Absence)	
Others (to specify)	
Total	**100%**

References & Bibliography

Textbook (Main Reference):		
Book title	**Author**	**Year of publication**
Introduction to Linear Algebra	Gilbert Strang	ISBN : 978-17331466-7-8
An Introduction to Statistical Learning	Gareth James el.	ISSN 1431-875X
Supplementary References (if any):		
Article (1)	**Author**	**Editor and edition year**
Article (2)	**Author**	**Editor and edition year**

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Course Schedule

Week	Course Title	Date
1	Chapter 1: Introduction to data science	
2	Chapter 2: Introduction to data science	
3	Chapter 2: Data science process	
4	Chapter 3: Tools and Technologies Used in Data Science	
5	Chapter 4: Basic Principles of Linear Algebra	
6	Chapter 4: Basic Principles of Linear Algebra	
7	Chapter 5: Linear Models	
8	Chapter 5: Linear Models	
9	Chapter 6: Advanced Linear Algebra	
10	Chapter 6: Advanced Linear Algebra	
11	Chapter 7: Numerical Methods in Data Science	
12	Final semester examen	
13	Make-up exam	

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Schedule for Tutorials and Practical Work (TD/TP)

Semaine	Titre du TP/TP	Date
1	Practical Work 00	
2	Practical Work 01	
3	Practical Work 02	
4	Practical Work 03	
5	Practical Work 04	
6	Practical Work 05	
7	Practical Work 06	
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Course Coordinator

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We, third-year Computer Engineering students, Data Science specialization, hereby certify that we have reviewed the syllabus for the course **Foundations of Data Science** and have been informed about the evaluation methods.

N°	Name	First Name	Email, Phone	Signature
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Le 17/10/2025

L'enseignante Bilal DENDANI