ACIBADEM UNIVERSITY
Faculty of Engineering / Computer Engineering
2025 - 2026 / Fall Semester
(CSE 331) (Exploratory Data Analysis)
SYLLABUS

Course Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
Exploratory Data Analysis	CSE 331	Fall 2025	3+0	3	6
Course Language	English				
Course Type	Undergraduate				
Course Coordinator	Barış Arslan				
Course Period					
Attendance	Mandatory				
Course Aims	The course is an introduction to the methods and tools to draw conclusions from data set through exploration, prediction and inferences. Exploration is the process of identifying patterns in data. Prediction uses the data we have to make informed guesses about values we want to know. Inference involves quantifying our degree of certainty. Objective of the course is to introduce data exploration, prediction and inference techniques and to showcase the application of these techniques to datasets.				
Course Outputs	After successful completion of the course, the student will: ● Understand the concepts in data exploration, prediction and inference. ● Use data visualization techniques. ● Understand exploratory techniques for summarizing data. ● Use Python packages for data exploration, statistical analysis and data visualization				
Course Contents	Data exploration, prediction, inference, visualization, statistical analysis				
Evaluation Criteria	**Evaluation Components**				
	Exam #1 (Midterm Exam)	% 25			
	Assignments	% 25			
	Attendance & Participation	% 10			
	Exam #2 (Final Exam)	% 40			

Week	Subject header
1	Introduction, Arrays (NumPy)
2	Tables (Pandas): Creating and Manipulating
3	Visualization: Line and Scatter Plot, Bar Chart, Histograms
4	Group by and Aggregation, Join
5	Randomness, Sampling and Empirical Distributions
5	Exam #1 (Midterm Exam) (Date: 24 October 2025, Friday, 14:00)
7	Assessing Models, Testing Hypotheses
8	Estimation: Confidence Intervals
9	Why the Mean Matters, Central Limit Theorem
10	Exam #2 (Final Exam) (Date: 20 November 2025, Thursday, 15:00)
11	No class
12	No class
13	No class
14	No class

References	
Main Textbook	Python for Data Analysis by Wes McKinney. https://wesmckinney.com/book/ Computational and Inferential Thinking: The Foundations of Data Science by Ani Adhikari, John DeNero and David Wagner. https://www.inferentialthinking.com/ Additional resources will be shared.