Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
EM 516	Statistics For Data Science	1	4	0	0	3	8

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	The aim of this course is to introduce students to the fundamental statistical concepts, methods, and techniques that form the foundation of data science and to equip them with the knowledge and skills necessary to collect, organize, summarize, analyze, and interpret data. The course covers probability theory, probability distributions, sampling, statistical estimation, hypothesis testing, and simple linear regression, with the objective of developing students' competencies in data-driven analysis and decision-making.
Content	Introduction to Data Science and Statistics, Data Types and Data Collection Methods Presentation of Data Using Tables and Graphs Descriptive Statistics and Numerical Summary Measures Basic Probability Concepts and Probability Rules Discrete Random Variables and Probability Distributions Continuous Probability Distributions and the Normal Distribution Sampling Methods and Sampling Distributions Confidence Intervals and Parameter Estimation Statistical Hypothesis Testing Simple Linear Regression Analysis Statistical Analysis Using Real-World Datasets and Interpretation of Results

References	Main Textbook Levine, D. M., Stephan, D. F., & Szabat, K. A. (2017). Statistics for Managers Using Microsoft Excel (8th ed.). Pearson Education. Course Materials - Lecture notes and presentations prepared by the instructor - Statistical problem-solving and data analysis exercises - Sample datasets and practice files used throughout the course

Theory Topics

Week	Weekly Contents
1	Introduction to Statistics and Data Collection Methods
2	Presentation of Data Using Tables and Graphs
3	Descriptive Statistics and Numerical Summary Measures
4	Basic Probability Concepts and Probability Rules
5	Discrete Random Variables and Probability Distributions
6	Continuous Probability Distributions
7	Midterm Examination
8	Sampling Methods and Sampling Distributions
9	Parameter Estimation and Confidence Intervals
10	Statistical Hypothesis Testing
11	Simple Linear Regression Analysis