Course Syllabus

Code - Course Title	**EÖD505 - Educational Statistics I**
Course Type	I. SEMESTER
Laboratory + Practice	3+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Elective Courses
Course Instructor(s)	PROF. DR. YAVUZ AKBULUT

Mode of Delivery	This course is delivered through face-to-face instruction.
Place of Delivery	On Campus
Used Educational Platforms	Face-to-face
Prerequisites	This course has no prerequisites or corequisites.
Courses Recomended	Not applicable
Recommended Resources	• Akbulut, Y. (2010). Sosyal bilimlerde SPSS uygulamaları: Sık kullanılan istatistiksel analizler ve açıklamalı SPSS çözümleri. İdeal. • Field, A. (2009). Discovering statistics using SPSS (3rd edition). Sage.• Huck, S.W. (2012). Reading statistics and research (6th edition). Pearson.• Pallant, J. (2020). SPSS survival manual: A step by step guide to data analysis using IBM SPSS. Routledge.
Work Placement	Not applicable
Aims of the Course	This course aims to equip students with fundamental descriptive and inferential statistical methods used in educational research and develop their skills in analyzing data using appropriate statistical techniques and interpreting the results scientifically.

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1	**LO-1**	Introduction to statistics and basic concepts: data, variables, observations, and measurement	Lecture, Question & Answer, Discussion
Week - 2	**LO-1**	Types of variables and levels of measurement: nominal, ordinal, interval, and ratio scales	Lecture, Question & Answer, Discussion, Problem Solving
Week - 3	**LO-3**	Data organization and visualization: frequency tables, graphs, and data presentation	Lecture, Question & Answer, Discussion, Problem Solving
Week - 4	**LO-2**	Descriptive statistics I: measures of central tendency (mean, median, mode)	Lecture, Question & Answer, Discussion, Problem Solving
Week - 5	**LO-2**	Descriptive statistics II: measures of dispersion (variance, standard deviation, range)	Lecture, Question & Answer, Discussion, Problem Solving

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 6	LO-3	Probability distributions: normal distribution and binomial distribution	Lecture, Question & Answer, Discussion, Problem Solving
Week - 7	LO-3	Preparing data for analysis: data organization, data cleaning, and assumption checking	Lecture, Question & Answer, Discussion
Week - 8	LO-3 LO-6	Correlation analysis I: meaning, types, and calculation of correlation	Lecture, Question & Answer, Discussion, Problem Solving
Week - 9	LO-3 LO-4 LO-6	Correlation analysis II: partial correlation and interpretation of correlation results	Lecture, Question & Answer, Discussion, Problem Solving, Brain Storming
Week - 10	LO-3 LO-4 LO-6	Regression analysis: simple linear regression and interpretation	Lecture, Question & Answer, Discussion, Problem Solving
Week - 11	LO-4	Introduction to hypothesis testing: research hypotheses, types of errors, and testing logic	Lecture, Question & Answer, Discussion, Problem Solving, Brain Storming
Week - 12	LO-4	Parametric tests I: t-tests for independent groups and repeated measures	Lecture, Question & Answer, Discussion, Problem Solving
Week - 13	LO-4	Parametric tests II: analysis of variance (ANOVA), pairwise comparisons, effect size, and statistical power	Lecture, Question & Answer, Discussion, Problem Solving, Brain Storming
Week - 14	LO-5	Nonparametric tests: Chi-square, Mann–Whitney U, Wilcoxon signed-rank, Kruskal–Wallis, and Friedman tests	Lecture, Question & Answer, Discussion, Problem Solving, Brain Storming

Learning Outcomes

#	Learning Outcome
1	Students will be able to analyze fundamental statistical concepts and data structures used in educational research.
2	Students will be able to interpret data structures using descriptive statistics and probability distributions.
3	Students will be able to prepare research data for analysis and apply appropriate relational analyses.
4	Students will be able to select appropriate hypothesis tests and critically evaluate their results.
5	Students will be able to apply appropriate nonparametric tests to address research questions and interpret their results.

Learning Outcomes

#	Learning Outcome
6	Students will be able to apply correlation and regression analyses to interpret relationships among variables.

Sustainable Development Goals

✓ Quality Education

Course Theme

✓ Educational Sciences and Educational Technologies ✓ Data Science

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	3.00	14	42
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	4.00	14	56
Ödevler	3.00	4	12
Proje - Rapor - Sunum Hazırlama	0.00	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	10.00	2	20
Final Sınavı Hazırlığı (sınav süresi dahil)	15.00	1	15
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0.00	0	0
Staj Uygulaması	0.00	0	0
		Calculated ECTS	**6.0**

Assessment Method and Passing Requirements

✓ Open-Ended Test ✓ Multiple Choice Test ✓ Short-Answer Test ✓ Homework

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	20
Final Exam	1	50
2.Midterm Exam	1	30
	Sum (%)	**100**