Subject	Hypothesis Testing, Statistics and Data Analysis		
Type	Type	Semester	ECTS
	MANDATORY (M)	3	4
Lecturer	Dr. Sc. Abedin Bahtiri		
Aims and Objectives	This course introduces statistical methods and hypothesis testing techniques relevant to sports performance analysis, research, and decision-making. Students will learn foundational concepts, data interpretation, and practical applications in sports science and management.		
Learning Outcomes	Upon successful completion of this course, the student should: • Understand the Basics: Explain fundamental statistical concepts, including measures of central tendency, variability, and probability. • Design Research: Formulate testable hypotheses and design experiments for sports-related studies. • Apply Statistical Tests: Use appropriate hypothesis tests (e.g., t-tests, chi-square tests, ANOVA) to analyze sports performance and outcomes. • Interpret Data: Draw insights from data using statistical software and translate findings into actionable recommendations for sports scenarios. • Evaluate Performance: Assess athletes, teams, and strategies using descriptive and inferential statistical methods. • Communicate Findings: Present statistical results clearly and effectively in written, graphical, and verbal formats tailored to stakeholders in the sports industry.		

	Week	Topics
Content		**Syllabus presentation**
	1	**Introduction to Statistics in Sport:**
	2	Role of statistics in sports science and management
	3	Measures of central tendency (mean, median, mode) and variability (range, variance, standard deviation)
	4	**Data Collection and Management: Sampling techniques and biases**
	5	Designing surveys and experiments in sports research
	6	**Probability and Distributions:** Basics of probability theory in sports contexts
		Mid-term exam – 1
	7	Normal, binomial, and Poisson distributions
	8	Null and alternative hypotheses
	9	Statistical Tests in Sports Analysis: Parametric tests: t-tests (independent and paired), ANOVA Non-parametric tests: chi-square, Mann-Whitney U
	10	**Advanced Statistical Techniques in Sport:** Visualization of sports data: Graphs and dashboards
	11	Reporting statistical results for coaches, analysts, and stakeholders
	12	Ethics in sports statistics
		Mid-term exam – 2

Teaching/Learning Methods	Activity		Weight (%)
	Lectures		40
	Lab		40
	Research		10
	Independent learning		10
Assessment Methods	**Methods of assessment:**		Weight (%)
	Participation		10
	a) Mid-term exam -1		20
	b) Mid-term exam – 2		20
	Lab		20
	Individual and group work		30
ECTS Workload	**Activity**	**Weekly hours**	**Workload**
	Lectures	2	24
	Lab	n/a	12
	Independent learning	n/a	44
	Examination preparation	n/a	20
Literature	Books: 1. Introduction to Statistics in Sports by J. Albert 2. Sport Analytics: A Data-Driven Approach to Sport Business and Management by B. Franks **Software:** 3. Microsoft Excel 4. R / Python 5. SPSS or Tableau for data visualization Websites and Journals: 6. Journal of Sports Analytics 7. Sports Statistical Analysis blogs and forums		
Ethical standards	This course follows UBT College's Code of Ethics, requiring all students to behave accordingly. Any case of academic misconduct, including but not limited to cheating, plagiarism, or other forms of dishonesty, will lead to significant punishment such as failure of the specific assessment or the entire course, as well as further disciplinary measures in accordance with UBT College's academic integrity policies.		
Contact	abedin.bahtiri@ubt-uni.net		