PROBABILITY THEORY AND MATHEMATICAL STATISTICS

COURSE SYLLABUS ABSTRACT
of higher education institution

Speciality 1-28 01 02 – Digital Marketing

	STUDY MODE	
	full-time	part-time (shortened program)
Year	2	3
Semester	4	5
Lectures, hours	34	10
Practical classes (seminars), hours	34	8
In-class test (semester, hours)	-	1 (2 hours)
Pass/fail, semester	4	5
Contact hours	68	20
Independent study, hours	66	114
Total course duration in hours / credit units	134 / 4,0	134 / 4,0

1. Course outline: Random events. Random variables and their distribution functions. Numerical characteristics of random variables. Basic distributions of random variables. Multivariate random variables. Conditional law of distribution. Independence of random variables. The law of large numbers. Central limit theorem. Sampling. Graphic image of the sample. Empirical distribution function. Point estimation. Interval evaluation. Testing statistical hypotheses. Homogeneity criteria. Elements of regression and correlation analysis.

2. Course learning outcomes: upon completion of the course, students will be expected to

know:
– the basic provisions, formulas and theorems of probability theory and mathematical statistics;
– the basic types of probability distributions used in statistical analysis;
– the main methods of statistical processing and analysis of random experimental data;

be able to:
– perform actions on random events and probabilities of their implementation;
– operate with numerical characteristics and basic distributions of random variables;
– argue the possibilities of applying the basic theorems of probability theory;
– interpret the results of probabilistic analysis using the theory of qualitative behavior of random variables, statistical criteria and statistical estimates;
– apply the theoretical provisions of the topic to solving the applied problems of economic practice.

possess:
− how to use the applied methods of probability theory and mathematical statistics;
− proficiency in numerical calculation of basic characteristics required for probabilistic and statistical analysis in tasks arising from economic practice.

3. Competencies: Be able to apply basic scientific and theoretical knowledge to solve theoretical and practical problems (AC-1), possess system and comparative analysis (AC-2), possess research skills (AC-3), be able to work independently (AC-4), be able to generate new ideas (be creativity) (AC-5), possess an interdisciplinary approach to solving problems (AC-6), be able to learn, improve one's skills throughout your live (AK-9), use the basic laws of natural sciences in professional activities (AK-10), possess the basic methods, methods and means of obtaining, storing, processing information using computer technology (AC-11), organize one's work on a scientific basis, independently evaluate the results of one's activities (AC-14), possess the qualities of citizenship (SPC-1), be capable of social interaction (SPC-2), have the ability to interpersonal communication (SPC -3), be capable of criticism and self-criticism (SPC-5), be able to work in a team (SPC -6), analyze and evaluate collected data (PC-32 use global information resources (PC-35), to own modern information communication facilities (PC-36).

4. Requirements and forms of midcourse evaluation and summative assessment

Modular rating system is used. Intermediate certification: assessment of work in practical classes, control work. Current evaluation: pass/fail.