Study Program: Informatics	

Type and level of studies: Bachelor studies
Course name: Probability and Statistics
Lecturer: Valjarević J. Dragana
Status: Compulsory
ECTS: 7
Attendance Prerequisites: Mathematical analysis.

Course aims

Introducing basic concepts of probability and statistics, its role as a mathematical discipline and applications within the area of informatics.

Course outcome

The students understand the basic principles of probability and statistics, and are able to solve more complex problems.

Course content

Theoretical part

Random event. Event algebra. The definition of probability, properties. Conditional probability. Independent Events. Total probability rule, Bayes' theorem. Random variables, discrete and continuous. Some more relevant distributions. Multidimensional random variables, conditional distributions. The function of random variables. Mathematical expectation, dispersion, properties. Conditional mathematical expectation. Characteristic properties. Boundary theorems. Basic notion of random processes. Population. Sample. Statistics and distribution. Point and interval estimates. Methods of parameter estimation. Statistics hypotheses. Neyman Pearson theorem. Testing statistical hypotheses of mathematical expectation and dispersion.

Practical part

Probability definition and properties. Conditional probability, event independence. Total probability formula, Bayes' formula. Random variables, discrete and continuous. Random variable function. Mathematical expectation, dispersion, characteristics. Conditional mathematical expectation. Characteristic functions. Boundary theorems. Fundamental notions of random processes. Population, sample. Statistics and its distribution. Point and interval estimates. Methods of parameter estimation. Statistics hypotheses. Neyman Pearson theorem. Testing statistical hypotheses of mathematical expectation and dispersion.

Literature

1. М. Рајовић, Д. Станојевић, Вероватноћа и статистика, теорија и задаци, Академска мисао, Београд, 2006.
2. З. Ивковић, Теорија вероватноће са математичком статистиком, Грађевинска књига, Београд, 1982.
3. И. Аранђеловић, Теорија случајних догађаја, Београд, 2004.
4. З. Глишић, П. Перунучић, Збирка решених задатака из вероватноће и математичке статистике, Научна књига, Београд, 1982.

Number of active classes				Other classes
Lectures: 3	Practical classes: 3	Other forms of teaching:	Students' research work	

Teaching methods

Standard lecturing methods are used during lectures. In practical classes, the principles and problems are analysed.

Assessment (maximum 100 points)			
Course assignments	points	Final exam	points
activity during lectures	**10**	written exam	**20**
practical classes		oral exam	**30**
term test(s)	**40**	....	
seminar(s)			
Total	**50**		**50**