



COURSE DATASHEET

Semester:	2016/17/2
Course:	Probability Theory and Mathematical Statistics
Code:	VEMKMA1344B
Responsible department:	Department of Mathematics
Department code:	MIMA
Responsible instructor:	Dr. Éva Mihálykóné Orbán

Course objectives:

Basic concepts of probability distributions and statistics..

Course content:

Random experiments. Events, operation with events, algebra of events. Frequency and relative frequency. Axioms of probability. Consequences of the axioms. Combinatorial and geometric probability. Conditional probability. Independency of events and experiences. Theorem of total probability and Bayes' theorem with applications. Concept of random variables. Concept of distributions. Definition and properties of distribution functions and probability density functions. Concept and properties of expectation, variance, dispersion and covariance. Expectation and dispersion of functions of random variables. Classical discrete distributions: characteristic, uniform, binomial, hypergeometric, Poisson distribution. Sampling with replacement and without replacement. Basic continuous distributions: uniform, exponential and normal distributions. Connections between distributions. Law of large numbers. Central limit theorem. Applications. Statistical sample. Empirical distribution function and density function. The basic theorem of statistical sampling: Glivenko's theorem.

Requirements, evaluation and grading:

Based on written tests during the semester.

Required and recommended readings:

Reimann J. - Tóth J.: Valószínűségelmélet és matematikai statisztika, Nemzeti Könyvkiadó, Bp.

Solt György: Valószínűségszámítás (példatár). Műszaki Könyvkiadó, Bp.