

## **Probability Theory and Mathematical Statistics**

Instructor: László Márkus

Term: Fall Weeks: 1-7

Contact hours: 3 Credits: 6

Aim and scope:

This course gives an introduction to the basic concepts of probability theory, including multivariate distributions, copulas and limit theorems and to mathematical statistics, which are essential in understanding the properties of uncertainty in mathematical models.

Syllabus:

Understanding the basic concepts of probability theory and mathematical statistics.

Understanding the properties of uncertainty in mathematical models.

Formalizing real world problems about stochastic phenomena in the language of probability.

Basics of probability, univariate distributions. Multivariate distributions, copulas. Limit theorems, extreme-value models.

Basics of mathematical statistics. Most important methods in hypothesis testing. Basic notions of multivariate statistics.

A számonkérés és értékelés rendszere angolul: exam

References:

Hossein Pishro-Nik: Introduction to Probability, Statistics, and Random Processes (2014)

Stuart Coles: An Introduction to Statistical Modeling of Extreme Values (2001)