Department of Probability and Mathematical Statistics

 # Mathematics, statistics, probability
 # Stochastics, optimization, MFF
 # Insurance, analysis, finance
 # Biostatistics, bioinformatics
 # Stochastic geometry, stochastic processes
 # Risk management

„Our expertise in theoretical probability, statistics and optimization can be applied in finance, insurance, biomedical sciences and industry.“

Offer

- Analysis and modeling of complex data structures
- Applications of stochastic models in time and/or space
- Solutions to optimization problems
- Assessment of financial and insurance products
- Design and analysis of randomized and observational studies
- Development of creative designs for scientific and industrial experiments that save resources and increase precision
- Application of advanced analytical techniques and models in order to improve decision making in diverse types of practical problems

Expertise

- **Statistics**: analysis of complex high-dimensional data, functional data analysis, dynamic models, time series, analysis of extremes, change-point analysis, supervised and unsupervised classification
- **Biostatistics and Bioinformatics**: analysis of biomedical, genetic and high-dimensional data, design of clinical studies, methods for analysis of data from observational and randomized studies
- **Stochastic Processes**: point processes, stochastic calculus, random fields
- **Stochastic Geometry**: random closed sets, spatial and space-time point processes, stereology
- **Optimization/Operation Research**: asset-liability management, revenue management, simulation, facility planning, scheduling, portfolio optimization, sensitivity and output analysis
- **Financial & Insurance Mathematics**: risk management, credit scoring, derivatives pricing, rate-making, optimal pricing in insurance, reserving, stress testing

Research Areas & Excellence

- We conduct research and education in scientific fields that deal with randomness and uncertainty.
- We develop mathematical models which include random components, investigate them theoretically and apply them to solve practical problems.
- The department provides a unique combination of expertise in topics ranging from theoretical probability, statistics and optimization to applications in finance, insurance, biomedical sciences and industry.

Partnerships & Collaborations

Academic Partners

- University of Utah
- University of California, Los Angeles
- Johns Hopkins University
- KU Leuven
- Humboldt-Universität zu Berlin
- Aarhus University
- University of Bergamo
- University of Vienna

Industry Partners

- KBC/ČSOB
- Raiffeisenbank
- Generali/Česká pojišťovna
- Institute for Clinical and Experimental Medicine
- Fred Hutchinson Cancer Research Center
- Motol University Hospital

Are you interested in this expertise?

Please contact CPPT UK
Web: www.cppt.cuni.cz/
Mail: transfer@cuni.cz
Tel.: +420 224 491 255

Experts and their Department

Assoc. Prof. Mgr. Michal Kulich, Ph.D.
Assoc. Prof. RNDr. Ing. Miloš Kopa, Ph.D.
Assoc. Prof. RNDr. Zbyněk Pawlas, Ph.D.
Department of Probability and Mathematical Statistics
Web: http://msekce.karlin.mff.cuni.cz/~kpms/?lang=en

Klíčová slova

 # Matematika, statistika, pravděpodobnost
 # Stochastika, optimalizace, MFF
 # Pojištění, analýza, finance
 # Biostatistika, bioinformatika
 # Stochastická geometrie, stochastické procesy
 # Risk management