

## PRACTICAL MATHEMATICS POSTGRADUATE SPECIALIZATION PROGRAM CURRICULUM

### FALL TERM

Course	Credit (ECTS)	Type
ALGEBRA	4 (8)	mandatory
ANALYSIS	4 (8)	mandatory
PROBABILITY	4 (8)	mandatory electice
Latex for Mathematicians	1 (2)	mandatory elective
THEORY of ALGORITHMS	2 (4)	elective
APPLIED PARTIAL DIFFERENTIAL EQUATIONS	2 (4)	elective
EVOLUTION EQUATIONS AND APPLICATIONS	2 (4)	elective
CONTROL OF DYNAMIC SYSTEMS	2 (4)	elective
NON-STANDARD ANALYSIS	2 (4)	Elective
SPECIAL FUNCTIONS AND RIEMANN SURFACES	2 (4)	Elective
DIFFERENTIAL GEOMETRY	2 (4)	Elective
SMOOTH MANIFOLDS AND DIFFERENTIAL TOPOLOGY	2 (4)	Elective
STOCHASTICS PROCESSES AND APPLICATIONS	2 (4)	Elective
MATHEMATICAL STATISTICS	2 (4)	Elective
MULTIVARIATE STATISTICS	2 (4)	Elective
INFORMATION THEORY	2 (4)	Elective
INFORMATION DIVERGENCES IN STATISTICS	2 (4)	Elective
NONPARAMETRIC STATISTICS	2 (4)	Elective

**WINTER TERM**

<b>Course</b>	<b>Credit (ECTS)</b>	<b>Type</b>
ALGEBRA 2	4 (8)	Mandatory elective
COMPLEX FUNCTION THEORY	4 (8)	Mandatory elective
FUNCTIONAL ANALYSIS AND DIFFERENTIAL EQUATIONS	4 (8)	Mandatory elective
TOPICS IN COMBINATORICS	4 (8)	Mandatory elective
TOPICS IN GEOMETRY/TOPOLOGY	4 (8)	Mandatory elective
TOPICS IN FINANCIAL MATHEMATICS	2 (4)	Elective
QUANTITATIVE FINANCIAL RISK ANALYSIS	2 (4)	Elective
RISK MEASURES	2 (4)	Elective
BIOINFORMATICS	2 (4)	elective
COMPUTATIONAL NUMBER THEORY	2 (4)	elective
COMPUTATIONS IN ALGEBRA	2 (4)	elective
MATRIX COMPUTATIONS WITH APPLICATIONS	2 (4)	elective
CRYPTOGRAPHIC PROTOCOLS	2 (4)	elective
CRYPTOLOGY	2 (4)	elective
COMBINATORIAL OPTIMIZATION	2 (4)	elective
NONLINEAR OPTIMIZATION	2 (4)	Elective
TOPICS IN NONLINEAR OPTIMIZATION	2 (4)	Elective
OPTIMIZATION IN ECONOMICS	2 (4)	Elective
INTRODUCTION TO DISCRETE MATHEMATICS	2 (4)	Elective
GRAPH THEORY AND APPLICATIONS	2 (4)	Elective
PACKING AND COVERING	2 (4)	Elective
CONVEX POLYTOPES	2 (4)	Elective
COMBINATORIAL GEOMETRY	2 (4)	Elective
GEOMETRY OF NUMBERS	2 (4)	Elective
EXACT AND APPROXIMATE ALGORITHMS	2 (4)	Elective
SCIENTIFIC PYTHON	2 (4)	Elective
HOW TO GAMBLE IF YOU MUST	2 (4)	Elective
MORSE THEORY	2 (4)	Elective
ALGORITHMS AND DATA STRUCTURES	2 (4)	Elective
QUANTITATIVE METHODOLOGY	2 (4)	Elective
INTRODUCTORY PYTHON	2 (4)	Elective
FUNDAMENTALS OF STOCHASTIC ANALYSIS	2 (4)	Elective