

☑ MSc Program: Algebra, Geometry and Number Theory
(education in English)

CURRICULUM 2023/2024

<i>Courses</i>	<i>ECTS-credits</i>	<i>Number of classes</i>	
		<i>total</i>	<i>per week</i>
<i>I semester</i>			
C*-algebras (E)	7,5	45	3+0+0
Codes and designs in polynomial metric spaces I (E)	7,5	60	3+1+0
Complex Algebraic Geometry (E)	7,5	45	3+0+0
Differential equations and applications with Mathematica, Matlab or Maple (E)	7,5	60	2+0+2
Differential geometry 2 (E)	8	60	4+0+0
Finite Geometry (E)	7,5	45	3+0+0
Game Theory (E)	7,5	45	3+0+0
Groebner bases (E)	7,5	45	3+0+0
Introduction to functional analysis (E)	8,5	60	3+1+0
Lie groups and Lie algebras (E)	8	60	4+0+0
Linear sieve - application (E)	7,5	45	3+0+0
Mathematical structures of quantum field theory (E)	7,5	45	3+0+0
Number theory with algorithms (E)	7,5	75	3+0+2
Riemannian geometry – selected applications, Bochner theory and vanishing theorems 1 (E)	8	60	4+0+0
Some Topics from Algebra II (E)	7,5	45	3+0+0
Special functions in Mathematical Physics (E)	7,5	60	3+1+0
Strongly regular graphs and association schemes (E)	7,5	45	3+0+0
<i>II semester</i>			
Additive problems in number theory (E)	9	60	4+0+0
Algebraic Number Theory (E)	8	60	3+1+0
Applied Algebraic Geometry (E)	7,5	45	3+0+0
Arithmetic progressions of primes (E)	7,5	45	3+0+0
Codes and designs in polynomial metric spaces II (E)	7,5	60	3+1+0
Combinatorial ring theory (E)	7,5	45	3+0+0
Cryptography (E)	7,5	45	3+0+0
Extremal combinatorics (E)	7,5	45	3+0+0
Finite groups (E)	7,5	45	3+0+0
Functional analysis (E)	8,5	60	3+1+0
Galois Theory (E)	7,5	45	3+0+0
Generating Functions (E)	7,5	45	3+0+0
Groups representation (E)	7,5	45	3+0+0
Hamiltonian systems (E)	7,5	45	3+0+0
Introduction in Ricci flow and Li-Yau inequalities (E)	8	60	4+0+0
Introduction to Analytic Number Theory (E)	9	60	4+0+0
Introduction to Commutative Algebra (E)	7,5	45	3+0+0
Introduction to Homological Algebra (E)	7,5	45	3+0+0
Measure Theory and Integration (the Lebesgue Integral) (E)	8	60	3+1+0
Multiplicative Number Theory (E)	9	60	4+0+0
Nonlinear Functional analysis (E)	7,5	45	3+0+0
Number theory in school competitive mathematics (E)	7,5	45	2+1+0
Representations of compact Lie groups (E)	8	60	4+0+0
Riemannian geometry – selected applications, Bochner theory and vanishing theorems 2 (E)	8	60	4+0+0
Seminar on Dynamical systems and Number			

theory 2 (E)	7,5	45	3+0+0
Several Complex Variables (E)	7,5	45	3+0+0
Sobolev Spaces and Applications in Partial Differential Equations (E)	8	75	3+2+0
Some Topics from Algebra I (E)	7,5	45	3+0+0
Valuation Theory (E)	8	60	4+0+0
Vector bundles and connections (E)	7,5	45	3+0+0

III semester

Seminar "Algebra, geometry and number theory" (C)	7,5	45	3+0+0
Course Project (C)	7,5		
Defense of Master's Thesis (C)	15		

C - compulsory course

E - elective course