UNIVERSITÀ degli STUDI di PADOVA

Dipartimento di Matematica "Tullio Levi-Civita" - DM

MASTER in MATHEMATICS - Classe: LM-40 - Matematica

Structure of the Study Plan:	courses:	term	credits:	
1. ALGEBRA: one course among:	RINGS AND CATEGORIES OF MODULES	I	8	
	INTRODUCTION TO GROUP THEORY	I	8	
	HOMOLOGICAL ALGEBRA	II	6	
	ALGEBRAIC GROUPS AND LIE ALGEBRAS	II	6	
	(or undergraduate courses: Teoria di Galois, Algebra Lineare Applicata)			
2. GEOMETRY: one course among:	DIFFERENTIAL GEOMETRY	I	8	
	COMMUTATIVE ALGEBRA	I	6	
	ALGEBRAIC GEOMETRY 1	I	8	
	ALGEBRAIC TOPOLOGY	II	6	
	ALGEBRAIC GEOMETRY 2	II	8	
	COMPLES GEOMETRY	II	6	
	(or undergraduate courses: Curve Algebriche Piane, Topologia, Sup.Riemann)			
3. ANALYSIS: two courses among:	FUNCTIONAL ANALYSIS	I	8	
	FUNCTIONS OF COMPLEX VARIABLES	I	6	
	FUNCTIONS THEORY	I	8	
	NON-LINEAR ANALYSIS	I	8	
	CALCULUS OF VARIATIONS	II	6	
	PARTIAL DIFFERENTIAL EQUATIONS 1	II	8	
	PARTIAL DIFFERENTIAL EQUATIONS 2	II	6	
	HARMONIC ANALYSIS	II	6	
	(or undergraduate courses: Analisi Reale, IntroEDP)			
4. PROBABILITY: one course among:	INTRODUCTION TO STOCHASTIC PROCESSES	I	8	
	STOCHASTIC ANALYSIS	I	7	
	(or undergraduate courses: Teoria delle Probabilità, Statistica Matematica)			
5. MATH.PHYSICS: one course among:	DYNAMICAL SYSTEMS	I	8	
	SYMPLECTIC MECHANICS	II	6	
	ADVANCED MATHEMATICAL PHYSICS	II	6	
	(or undergraduate courses: Modelli Fisico-Matematici, Meccanica Analitica)			
6. six courses among:	**the previous ones not already chosen, or**			
	MATHEMATICAL LOGIC 2	II	6	
	NUMBER THEORY 1	I	8	
	NUMBER THEORY 2	II	6	
	ADVANCED STOCHASTIC PROCESSES	II	7	
	STOCHASTIC METHODS FOR FINANCE	II	7	
DS	HIGH DIMENSIONAL PROBABILITY FOR DATA SCIENCE	I	6	
	NUMERICAL LINEAR ALGEBRA AND LEARNING FROM DATA	I	7	
	NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS	II	7	
	OPERATIONS RESERARCH	I	8	
	OPTIMIZATION	II	6	
SS	STOCHASTIC OPTIMIZATION	II	9	
	CRYPTOGRAPHY	I	6	
	MODERN PHYSICS	II	8	
	DEVELOPMENT OF MATHEMATICAL THOUGHT	II	6	
	EXPERIMENTS FOR THE TEACHING OF PHYSICS	I	6	
	COMPLEMENTARY MATHEMATICS	II	6	
	ELEMENTARY MATHEMATICS	I	6	
for at least 80 credits of courses.				
7. compulsory:	SEMINAR ACTIVITIES or LINGUISTIC SKILLS		4	4
	FINAL EXAMINATION (MASTER THESIS)		36	36
in total at least 120 credits.				
NOTES:	free courses must be chosen consistently with the curriculum, credits must amount from 8 to 16.			
	the study plan must contain no more than 12 courses, no more than 2 undergraduate courses.			
a.a.2025/26	terms: I (approx October-January), II (approx March-June).			