

Plan d'études

Mathématiques 2024-25

Bloc 1

Cours	Session Examen	Examen	Crédits
<i>Lang.</i> <i>Code</i> <i>Sect.</i> <i>Enseign.</i> <i>Spécialisation</i> SHS : Introduction au projet SHS	Hiv		3
SHS : Projet SHS	Eté		3

Groupe 1

Cours	Master 1	Master 2	Session Examen	Examen	Crédits
<i>Lang.</i> <i>Code</i> <i>Sect.</i> <i>Enseign.</i> <i>Spécialisation</i> Projet de Mathématiques (master) MATH-498 MA Profs divers	En L T P I	C E L T P I	Eté Hiv	Pendant le semestre	10

Groupe 2

Cours	Master 1	Master 2	Session Examen	Examen	Crédits
<i>Lang.</i> <i>Code</i> <i>Sect.</i> <i>Enseign.</i> <i>Spécialisation</i> Abstract analysis on groups MATH-416 MA Monod	En L T P I	C E L T P I	Eté	Oral	5
Advanced analytic number theory MATH-521 MA		2h 2h	Eté	Oral	5
Algebraic geometry III - selected topics MATH-535 MA Schlegel Mejia		2h 2h	Eté	Oral	5
Algebraic geometry II - schemes and sheaves MATH-510 MA Filipazzi Mukhopadhyay	4h 4h		Hiv	Ecrit	10
Applied biostatistics MATH-493 MA Goldstein		2h 2h	Eté	Pendant le semestre	5
Applied statistics MATH-516 MA Mhalla		1h 3h	Eté	Pendant le semestre	5
Biostatistics MATH-449 MA Stensrud		2h 2h	Eté	Ecrit	5
Calculus of variations MATH-437 MA Michelat		2h 2h	Eté	Oral	5
Complex manifolds MATH-473 MA		2h 2h	Eté	Ecrit	5
Computational linear algebra MATH-453 MA Kressner		2h 2h	Eté	Ecrit	5
Concentration of measures MATH-496 MA		2h 2h	Eté	Oral	5
Differential geometry IV - general relativity MATH-530 MA Moschidis	2h 2h		Hiv	Oral	5
Diophantine approximation MATH-540 MA	2h 2h		Hiv	Oral	5
Dispersive PDEs MATH-478 MA Krieger		2h 2h	Eté	Oral	5
Distribution and interpolation spaces MATH-502 MA Michelat		2h 2h	Eté	Oral	5
Empirical processes MATH-522 MA Limnios		2h 2h	Eté	Ecrit	5
Ergodic theory MATH-518 MA Richter	2h 2h		Hiv	Oral	5

	Error control in scientific modelling						
E	MATH-500	MA	Herbst	2h 2h	Hiv	Oral	5
	Foundations of probabilistic proofs						
E	CS-459	IN	Chiesa	4h 1h	Hiv	Pendant le semestre	6
	Gaussian processes						
E	MATH-426	MA		2h 2h	Eté	Oral	5
	Gödel and recursivity						
E	MATH-483	MA	Duparc	2h 2h	Hiv	Ecrit	5
	Harmonic analysis						
E	MATH-405	MA		2h 2h	Eté	Oral	5
	HPC for numerical methods and data analysis						
E	MATH-505	MA	Grigori	2h 2h	Hiv	Oral	5
	Integer optimisation						
E	MATH-504	MA		2h 2h	Eté	Ecrit	5
	Introduction à la géométrie riemannienne						
F	MATH-422	MA		2h 2h	Eté	Oral	5
	Introduction to dynamical systems						
E	MATH-523	MA	Krieger	2h 2h	Hiv	Oral	5
	Introduction to stochastic PDEs						
E	MATH-485	MA	Hairer	3h 2h	Eté	Oral	5
	Lattice models						
E	MATH-434	MA	Hongler	2h 2h	Hiv	Ecrit	5
	Linear algebraic groups						
E	MATH-479	MA		2h 2h	Eté	Oral	5
	Martingales in financial mathematics						
E	MATH-470	MA	Schmutz	2h 2h	Eté	Oral	5
	Mathematical modelling of behavior						
E	MATH-463	MA	Bierlaire	2h 2h	Hiv	Ecrit	5
	Metric embeddings						
E	MATH-513	MA		2h 2h	Hiv	Ecrit	5
	Multivariate statistics						
E	MATH-444	MA	Panaretos	2h 2h	Eté	Ecrit	5
	Nonlinear Schrödinger equations						
E	MATH-514	MA		2h 2h	Eté	Oral	5
	Nonparametric estimation and inference						
E	MATH-524	MA	Chandak	2h 2h	Eté	Ecrit	5
	Number theory II.a - Modular forms						
E	MATH-511	MA	Viazovska	2h 2h	Eté	Oral	5
	Number theory II.b - selected topics						
E	MATH-417	MA	Michel	2h 2h	Eté	Oral	5
	Number theory II.c - Cryptography						
E	MATH-489	MA	Jetchev	2h 2h	Eté	Ecrit	5
	Numerical integration of dynamical systems						
E	MATH-452	MA	Blumenthal	2h 2h	Eté	Ecrit	5
	Numerical integration of stochastic differential equations						
E	MATH-450	MA	Nobile	2h 2h	Hiv	Ecrit	5
	Numerical methods for conservation laws						
E	MATH-459	MA	Licht	2h 2h	Hiv	Oral	5
	Numerics for fluids, structures & electromagnetics						
E	MATH-468	MA		2h 2h	Hiv	Oral	5
	Optimal transport						
E	MATH-476	MA	Fernandez-Real	2h 2h	Hiv	Oral	5
	Optimization on manifolds						
E	MATH-512	MA	Boumal	2h 2h	Eté	Pendant le semestre	5

	Probabilistic methods in combinatorics						
E	MATH-467	MA	Janzer	2h 2h	Eté	Ecrit	5
	Randomized matrix computations						
E	MATH-403	MA	Kressner	2h 2h	Hiv	Oral	5
	Regression methods						
E	MATH-408	MA	Davison	2h 2h	Hiv	Ecrit	5
	Representation theory of semisimple lie algebras						
E	MATH-492	MA		2h 2h	Eté	Ecrit	5
	Riemann surfaces						
E	MATH-410	MA	Mornev	2h 2h	Hiv	Ecrit	5
	Set theory						
E	MATH-318	MA	Duparc	2h 2h	Eté	Ecrit	5
	Spectral theory						
E	MATH-561	MA	Genoud	2h 2h	Eté	Oral	5
	Statistical analysis of network data						
E	MATH-448	MA	Olhede	2h 2h	Hiv	Ecrit	5
	Statistical computation and visualisation						
E	MATH-517	MA	Mhalla	2h 2h	Hiv	Pendant le 5 semestre	5
	Statistical inference						
E	MATH-562	MA	Davison	2h 2h	Hiv	Ecrit	5
	Statistical machine learning						
E	MATH-412	MA	Obozinski Zemel	2h 2h	Hiv	Ecrit	5
	Statistical mechanics and Gibbs measures						
E	MATH-486	MA		2h 2h	Eté	Oral	5
	Statistical theory						
E	MATH-442	MA	Zemel	2h 2h	Eté	Ecrit	5
	Statistics for genomic data analysis						
E	MATH-474	MA	Goldstein	2h 2h	Eté	Pendant le 5 semestre	5
	Stochastic epidemic models						
E	MATH-560	MA		2h 2h	Hiv	Ecrit	5
	Stochastic simulation						
E	MATH-414	MA	Nobile	2h 2h	Hiv	Ecrit	5
	Student seminar in pure mathematics						
E	MATH-563	MA	Wyss	2h 2h	Hiv	Pendant le 5 semestre	5
	Theory of stochastic calculus						
E	MATH-431	MA	Duch	2h 2h	Eté	Ecrit	5
	Topics in arithmetic geometry						
E	MATH-494	MA		2h 2h	Eté	Oral	5
	Topics in high-dimensional probability						
E	MATH-519	MA	Aru	2h 2h	Hiv	Oral	5
	Topics in machine learning						
E	MATH-520	MA		2h 2h	Hiv	Pendant le 5 semestre	5
	Topics in stochastic analysis						
E	MATH-487	MA	Li	3h 2h	Hiv	Oral	6
	Topology IV.a -Algebraic K-theory						
E	MATH-488	MA		2h 2h	Hiv	Ecrit	5
	Topology IV.b - cohomology rings						
E	MATH-506	MA		2h 2h	Hiv	Ecrit	5
	Topology IV.b - homotopy theory						
E	MATH-497	MA	Scherer	2h 2h	Eté	Ecrit	5
	Topology V.a - Homotopical algebra						
E	MATH-436	MA		2h 2h	Eté	Oral	5

Projet de Master

Cours	PDM Automne	PDM Printemps	Session	Examen	Crédits
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Lang.	Code	Sect.	Enseign.	Spécialisation	En	L	T	P	I	C	E	L	T	P	I	Examen		
	Projet de master en mathématiques																	
	MATH-599	MA	Profs divers							900h						900h Eté Hiv	Oral	30