Studies Plan

Data Science 2026-27

Block "Projects & SHS"

Lang.	Courses Code	Sect.	Teacher	Specialization	Master 1 C	E	L	T	P	I	Master 2 C	E	L	T	P	I	Exam Session	Exam	Credit
E	**Semester research project in Data Science** COM-412	SC	Profs divers							2h						2h	Sum Win	During the semester	12
	HSS : Introduction to project		SHS														Win		3
	HSS : Project		SHS														Sum		3

Group 1

Lang.	Courses Code	Sect.	Teacher	Specialization	Master 1 C	E	L	T	P	I	Master 2 C	E	L	T	P	I	Exam Session	Exam	Credit
E	**Algorithms II** CS-450	IN	Kapralov		4h	3h											Win	Written	8
E	**Applied data analysis** CS-401	SC	West		2h				2h								Win	Written	8
E	**Foundations of Data Science** COM-406	IN	Gastpar Urbanke		4h	2h											Win	Oral	8
E	**Machine learning** CS-433	IN	Flammarion Jaggi		4h	2h			2h								Win	Written	8
E	**Modern natural language processing** CS-552	IN	Bosselut								3h	1h			2h		Sum	Written	8
E	**Optimization for machine learning** CS-439	IN	Flammarion Jaggi								2h	2h	1h				Sum	Written	8
E	**Systems for data management and data science** CS-460	IN	Ailamaki Kermarrec								2h	2h	2h				Sum	Written	8

Group 2 : Options

Lang.	Courses Code	Sect.	Teacher	Specialization	Master 1 C	E	L	T	P	I	Master 2 C	E	L	T	P	I	Exam Session	Exam	Credit
E	**Advanced compiler construction** CS-420	IN	Schinz								2h				2h		Sum	During the semester	6
E	**Advanced cryptography** COM-501	SC	Vaudenay								2h	2h					Sum	Written	6
E	**Advanced probability and applications** COM-417	SC	Shkel								4h	2h					Sum	Written	8
E	**Advanced topics on privacy enhancing technologies** CS-523	IN	Fassl								3h	1h			2h		Sum	Written	8
E	**AI for global health** CS-467	IN	Hartley		2h	1h			12h								Win	During the semester	8
E	**AI product management** CS-500	IN	Kaboli Zamir		2h	2h			3h								Win	During the semester	6
E	**Algorithmic game theory** MGT-435	MTE	Cristi								2h	2h					Sum	Written	4

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	Applied biostatistics											
E	*MATH-493*	*MA*					2h	2h			*Sum*	*During the semester*	*5*
	Automatic speech processing											
E	*EE-554*	*EL*	*Magimai Doss*	2h	2h						*Win*	*Written*	*4*
	Basics of mobile robotics											
E	*MICRO-452*	*MT*	*Mondada*	1h		1h	2h				*Win*	*Written*	*4*
	Brain-style learning in neural networks											
E	*CS-479*	*IN*	*Gerstner*					2h	1h	1h	*Sum*	*Oral*	*6*
	Causal inference											
E	*MGT-416*	*MTE*	*Kiyavash*					2h	1h		*Sum*	*During the semester*	*4*
	Causal thinking											
E	*MATH-352*	*MA*	*Stensrud*					2h	2h		*Sum*	*Written*	*5*
	Computational complexity											
E	*CS-524*	*IN*	*Göös*	2h	2h						*Win*	*During the semester*	*6*
	Computational linear algebra											
E	*MATH-453*	*MA*	*Kressner*					2h	2h		*Sum*	*Written*	*5*
	Computational neurosciences: neuronal dynamics											
E	*NX-465*	*NX*	*Gerstner*					2h	2h		*Sum*	*Written*	*5*
	Computers and music											
E	*COM-418*	*SC*						2h	1h		*Sum*	*During the semester*	*6*
	Computer vision											
E	*CS-442*	*IN*	*Fua*					2h	1h		*Sum*	*Written*	*6*
	Concurrent computing											
E	*CS-453*	*SC*	*Guerraoui*	2h	1h	2h					*Win*	*Written*	*6*
	Cryptography and security											
E	*COM-401*	*SC*	*Vaudenay*	4h	2h						*Win*	*Written*	*8*
	Data visualization											
E	*COM-480*	*SC*	*Vuillon*					2h		2h	*Sum*	*During the semester*	*6*
	Deep learning											
E	*EE-559*	*EL*	*Cavallaro*					2h	2h		*Sum*	*During the semester*	*4*
	Deep learning in biomedicine											
E	*CS-502*	*IN*	*Brbic*					2h	2h	1h	*Sum*	*During the semester*	*6*
	Digital education											
E	*CS-411*	*IN*	*Käser*	2h			2h				*Win*	*Written*	*6*
	Distributed algorithms											
E	*CS-451*	*SC*	*Guerraoui*	2h	1h	3h					*Win*	*Written*	*8*
	Distributed intelligent systems											
E	*ENG-466*	*SIE*		2h		2h	1h				*Win*	*Oral*	*5*
	Ethics and law of AI											
E	*DH-415*	*DH*	*Rochel*	2h			2h				*Win*	*During the semester*	*4*
	Formal verification											
E	*CS-550*	*IN*	*Kuncak*	2h	2h		2h				*Win*	*During the semester*	*8*
	Foundation models and generative AI											
E	*CS-461*	*IN*	*Bunne*					2h	2h		*Sum*	*Written*	*6*
	Geometric computing											
E	*CS-457*	*IN*	*Pauly*	3h	1h	1h					*Win*	*Written*	*8*
	Graph theory											
E	*MATH-360*	*MA*	*Bradac*	2h	2h						*Win*	*Written*	*5*
	Image analysis and pattern recognition											
E	*EE-451*	*EL*	*Thiran*					2h		2h	*Sum*	*During the semester*	*4*
	Image processing I											
E	*MICRO-511*	*MT*	*Preti Unser Van De Ville*	2h	1h						*Win*	*Written*	*3*

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	Image processing II										
E	*MICRO-512*	*MT*	*Sage Unser Van De Ville*			2h	1h		*Sum*	*Written*	*3*
	Information theory and coding										
E	*COM-404*	*SC*	*Shkel*	4h	2h				*Win*	*Written*	*8*
	Interactive theorem proving										
E	*CS-428*	*IN*	*Pit-Claudel*			2h	1h	2h	*Sum*	*During the semester*	*8*
	Introduction to quantum cryptography										
E	*COM-440*	*IN*	*Liu Vidick*	3h	1h				*Win*	*Oral*	*6*
	Large-scale data science for real-world data										
E	*COM-490*	*SC*	*Bouillet Delgado Sarni Verscheure*					4h	*Sum*	*During the semester*	*6*
	Learning theory										
E	*CS-526*	*IN*				2h	2h		*Sum*	*Written*	*6*
	Linear models										
E	*MATH-341*	*MA*	*Panaretos*	2h	2h				*Win*	*Written*	*5*
	Machine learning for behavioral data										
E	*CS-421*	*IN*	*Käser*			2h		2h	*Sum*	*Written*	*6*
	Markov chains and algorithmic applications										
E	*COM-516*	*SC*		2h	1h	1h			*Win*	*Written*	*6*
	Mathematics of data: from theory to computation										
E	*EE-556*	*EL*	*Cevher*	3h		3h			*Win*	*Written*	*6*
	Network machine learning										
E	*EE-452*	*EL*	*Frossard Thanou*			2h		2h	*Sum*	*During the semester*	*4*
	Networks out of control										
E	*COM-512*	*SC*				2h	1h		*Sum*	*Written*	*6*
	Optional research project in Data Science										
E	*COM-508*	*SC*	*Profs divers*			2h		2h	*Sum Win*	*During the semester*	*8*
	Project management and risk analysis										
F	*MGT-427*	*MTE*	*Wieser*	2h		1h			*Win*	*During the semester*	*4*
	Regression methods										
E	*MATH-408*	*MA*	*Limnios*	2h	2h				*Win*	*Written*	*5*
	Seminar on applied cryptography										
E	*COM-506*	*SC*	*Vaudenay*			2h			*Sum*	*During the semester*	*3*
	Software security										
E	*CS-412*	*IN*	*Payer*			3h	2h	1h	*Sum*	*Written*	*8*
	Statistical inference										
E	*MATH-562*	*MA*	*Wang*	2h	2h				*Win*	*Written*	*5*
	Statistical physics of computation										
E	*PHYS-512*	*PH*	*Erba Krzakala Piccolo Zdeborová*	2h	2h				*Win*	*Written*	*4*
	Statistical theory										
E	*MATH-442*	*MA*				2h	2h		*Sum*	*Written*	*5*
	Sublinear algorithms										
E	*CS-448*	*IN*	*Kapralov*			2h	1h		*Sum*	*During the semester*	*6*
	Time series										
E	*MATH-342*	*MA*	*Olhede*			2h	2h		*Sum*	*Written*	*5*
	Topics in theoretical computer science										
E	*CS-455*	*IN*	*Svensson*	3h	1h				*Win*	*During the semester*	*6*

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	Urban digital twins								
E	*URB-410*	*SIE*	*Kaplan*	3h		1h	*Sum*	*During the semester*	*4*
	Visual intelligence								
E	*CS-503*	*IN*	*Zamir*	2h	1h	1h	*Sum*	*During the semester*	*6*

Master project

	Courses			***Master 1***						***Master 2***						***MP Autumn***						***MP Spring***						***Exam Session***	***Exam***	***Credit***
Lang.	*Code*	*Sect.*	*Teacher*	*Specialization*	*C*	*E*	*L*	*T*	*P*	*I*	*C*	*E*	*L*	*T*	*P*	*I*	*C*	*E*	*L*	*T*	*P*	*I*	*C*	*E*	*L*	*T*	*P*	*I*			
	Engineering internship credited with Master project (master in Data science)																														
E	*COM-596*	*SC*	*Profs divers*								320h						320h						320h						320h	*Sum Win*	*During the semester*	*0*
	Master project in Data science																														
E	*COM-598*	*SC*	*Profs divers*																				900h						900h	*Sum Win*	*Oral*	*30*

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