

Course	SDD	CFU	Hours
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Block I – Bootcamp courses			
Mathematics and Statistics for Data Science		8	64
Optimization	MAT/09	2	16
Numerical calculus and linear algebra	MAT/08	2	16
Probability and stochastic processes	MAT/06	2	16
Statistical inference and modelling	SECS-S/01	2	16
Algorithmic Foundations and Programming Skills		6	48
Algorithms and programming in Python and R for data science	INF/01	3	24
Machine learning	ING-INF/05	2	16
Optimization for machine learning	MAT/09	1	8

Block II – Core courses			
Statistical Learning for Data Science		6	48
Statistical learning	SECS-S/01	2	16
Geo-spatial data analysis	SECS-S/01	2	16
Network data analysis	SECS-S/01	2	16
Supervised and Unsupervised Learning		6	48
Advanced machine learning	MAT/09	3	24
Deep learning, neural networks, and reinforcement learning	ING-INF/05	3	24
Complex Systems		6	48
Text mining and NLP	ING-INF/05	2	16
Network and media analysis	FIS/03	2	16
Complex system analysis	FIS/03	2	16
Decision Theory for Data Science		7	56
Bayesian inference and causal machine learning	SECS-S/01	3	24
Analytics in economics and business	SECS-P/06	3	24
Ethics and law for data science	IUS/01	1	8

Block III – Elective courses			
<i>Two tracks chosen from</i>			
1) Data Science for Economics		4	32
Experiments and real-world evidence in economics - Part A	SECS-P/02	2	16
Policy evaluation and impact analysis	SECS-P/06	2	16
2) Data Science for Business		4	32
Time series analysis	SECS-S/03	2	16
Optimization of financial portfolios	SECS-S/06	2	15
3) Data Science for Health		4	32
Health analytics and data-driven medicine	SECS-P/02	2	16
Environmental and genomic data analysis	MED/01	2	16

Hands-on labs	SECS-S/01	3	24
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Total CFU/ hours of teaching	50	400
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Seminars, real-case studies by colleagues and partners	2	16
Internship	9	225
Final project	3	

Total CFU/hours	64
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