

Master Statistics and Data Science

Modules and Selection Rules

Mandatory for all	!
Mandatory or narrow selection within specialization	X
Choice within specialisation	*

Semester when starting in winter	Nr	Semester when starting in summer	Module	Offered in	ECTS	Man- datory for all	Machine Learning	Biostat. [Remark 1]	Social Stat. and Social DS	Econo- metrics	Metho- logy & Model.
						In total for each specialization at least 24 ECTS from modules with lectures and 9 ECTS from the seminar					
First Semester											
1 (or 2)	P 1	1 (or 2)	Statistical Modeling	WS and SS	9 +3	!					
1 (or 2)	P 2	2 (or 1)	Supervised Learning	WS and SS	6	!					
1	WP 1	2	Optimization	WS	6		X				
1	WP 2	2	Preclinical and Clinical Studies	WS	6			X			
1	WP 3	2	Complex Samples and Data Structures	WS	6				at least 2 out of 3		
1	WP 4	2	Basic Concepts and Structures in Official Statistics, Dissem....	WS	6				*	*	
1	WP 5	2	Causal Inference	WS	6				*	X	
1	WP 6	2	Survival Analysis	WS	6			*	*	*	at least 2 out of 3
Second Semester											
2 (or 1)	P 3	1	Statistical Inference	WS and SS	9	!					
2	P 4/I	2	Consulting	WS and SS		!					
2	WP 7	1	Deep Learning	SS	6		X				
2 or 4	WP 8	3	Advanced Machine Learning	SS	6		*				
2 or 4	WP 9	3	Applied Machine Learning	SS	6		*				
2	WP 10	1	Diagnostic Accuracy Studies	SS	6			*			
2	WP 11	3	Selected Topics in Biostatistics	SS	3			*			
2	WP 12	3	Analysis of High-dimensional Biological Data	SS	6			*			
2	WP 13	1	Introduction to Medical Terminology	SS	3			*			

2	WP 14	1	Data Collection and Questionnaire Design	SS	6					at least 2 out of 3		
2	WP 15	1	Official Statistics on Households, ...	SS	6				*	*		
2 or 4	WP 16	3	Advanced Methods in Social Statistics and Social Data Science	SS	6				*			
2	WP 17	1	Econometric Theory	SS	6					X		
2	WP 18	1	Time Series	SS	6					*		
2 or 4	WP 19	3	Machine Learning in Econometrics	SS	6						at least 1 out of 2	
2 or 4	WP 20	3	Selected Topics in Econometrics	SS	3					*		
2	WP 21	1	Regression for Correlated Data	SS	6			*	*	*		at least 2 out of 3
2	WP 22	1	Decision Theory	SS	6				*	*		at least 2 out of 3
2 or 4	WP 23	3	Methodological Discourses in Stat DS	SS	6							*
2	WP 24	1 or 3	Design of Experiments	SS	6							*
2 or 4	WP 25	3	Advanced Mathem. Concepts	SS	6							*
2	WP 26	3	Stochastic Processes	SS	6							*
2	WP 27	1 or 3	Teaching Statistics and Data Science	SS	6							
2	WP 28	1	Statistical Literacy	SS	3							
2	WP 29	3	Selected Topics of Applied Statistics	SS	3							
2	WP 30	3	Selected Software for Applied Statistics	SS	3							
2	WP 31	2	Seminar in Applied Statistics	WS and SS	9							
Third Semester												
3	P 4/II	3	Consulting	WS and SS	12	!						
3	WP 32	2 or 4	Current Research in Machine Learning	WS	6		*					
3	WP 33	2 or 4	Automated Machine Learning	WS	6		*					
3	WP 34	2 or 4	Selected Topics in Machine Learning	WS	3		*					
3	WP 35	2	Statistical Methods in Epidemiology	WS	6			*				
3	WP 36	2 or 4	Advanced Methods in Biostatistics	WS	6			*				
3	WP 37	2	Selected Biostatistical Applications	WS	3			*				
3 or 1	WP 38	2	Measurement and Modelling in Social Sciences	WS	6					at least 2 out of 3	*	*

3	WP 39	2 or 4	Computational Social Science	WS	6				*		
3	WP 40	2 or 4	Selected Topics of Social Statistics and Social Data Science	WS	3				*		
3	WP 41	2 or 4	Nonparametric Econometrics	WS	6					at least 1 out of 2	
3	WP 42	2 or 4	Current Research in Econometrics	WS	6				*		
3	WP 43	2 or 3	Advanced Applied Econometrics	WS and SS	6				*		
3	WP 44	2	Advanced Statistical Modelling	WS	6						*
3	WP 45	3	Spatial Statistics	WS	6						*
3	WP 46	2 or 4	Selected Topics of Statistical Methodology and Modelling	WS	3						*
3	WP 47	2	Advanced Programming	WS	6						
3	WP 48	2	Recent Advances in Theoretical Statistics	WS	6						
3	WP 49	2	Selected Topics of Statistical Computing	WS and SS	3						
3	WP 50	2	Selected Topics of Programming	WS and SS	3						
2 or 3	WP 51	2 or 3	Seminar in Theoretical Statistics	WS and SS	9						
3	WP 52	3	Adv. Res. Meth. in Machine Learning	WS and SS	9		X				
3	WP 53	3	Adv. Res. Meth. in Biostatistics	WS and SS	9			X			
3	WP 54	3	Adv. Res. Meth. in Soc. Stat. And Soc. DS	WS and SS	9				X		
3	WP 55	3	Adv. Res. Meth. in Econometrics	WS and SS	9					X	
3	WP 56	3	Adv. Res. Meth. in Meth. And Modelling	WS and SS	9						X
Fourth Semester											
4	P 5	4	Master's Thesis and Disputation	WS and SS	30		!				

Remark 1: Within the Biostatistics specialization, at least 12 ECTS have to come from WP 10, 11, 12, 13, 35, 36, 37