business data science
GRADUATE PROGRAM | Erasmus · VU

RESEARCH MASTER BUSINESS DATA SCIENCE (Joint degree) 2024-25

First Year	Aug	Sept-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-July
	Kick-off Principles of programming	Statistics/Asymptotic Statistics* (4 EC)	Econometrics 1/Advanced Econometrics 1* (4 EC)	Econometrics 2/Advanced Econometrics 2* (4 EC)	Econometrics 3/Advanced Econometrics 3* (4 EC)	Natural Language Processing (4 EC)
		Mathematics/Advanced Mathematics* (4 EC)	Machine Learning 1/Advanced Machine Learning* (4 EC)	Machine Learning 2/Reinforcement Learning* (4 EC)	Deep Learning (4 EC)	Research Internship** (4 EC)
		Decision Theory for Business (4 EC)	Parallel Computing (3 EC)	Track-Specific Elective (4 EC) (see below)	Simulation Analysis & Optimization (4 EC)	Track-Specific Elective (4 EC) (see below)

Business Foundation, Visits to Business Departments, Skills Workshop (Integrity) (1 EC)	TI Lectures

Tracks

			Jan-Feb		May-July
Quantitative Finance			Asset Pricing (4 EC)		Elective (4 EC) Empirical Asset Pricing, Empirical Corporate Finance, or Market and Systemic Risk Management
Management Science (Marketing, Innovation, Strategy, Human Resources and Organization Behavior, Knowledge and Information Networks)			Research Hackathon or Internship** (4 EC)		ABRI Elective** (4 EC)
Operations Research Analytics			Research Hackathon or Internship** (4 EC)		Integer Linear Programming (4 EC)

*depending on the students' own level, ** students can also opt for an elective

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Second Year

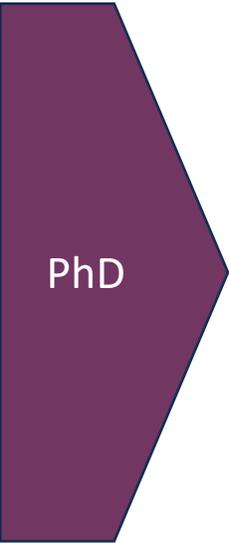| Tracks	Sept-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-July
	3 Electives (9 EC)	Bayesian Econometrics (3 EC) + 2 Electives (6 EC)	Skills Workshops (3 EC) + 3 Electives (9 EC)	Thesis (30 EC)	
Quantitative Finance	3 TI Electives, or 2 TI Electives and Research Internship	2 TI Electives (or 1 TI Elective and Research Internship)	Sustainable Finance and 2 TI Electives		
Management Science (Marketing, Innovation, Strategy, Human Resources and Organization Behavior, Knowledge and Information Networks)	AI@Work Social Network Analysis Marketing Science	Social Media Data Analytics and Research Internship	Human Res. and Organizational Beh. Analytics, Data Driven Inn. Strategy, Prediction and Forecasting, ABRI Elective		
Operations Research Analytics	Decomposition Methods Heuristic Optimization Social Network Analysis	TI/LNMB/Master Math elective and Research Internship	TI/LNMB/Master Math electives		

PhD