



business
data science

GRADUATE PROGRAM



RESEARCH MASTER BUSINESS DATA SCIENCE



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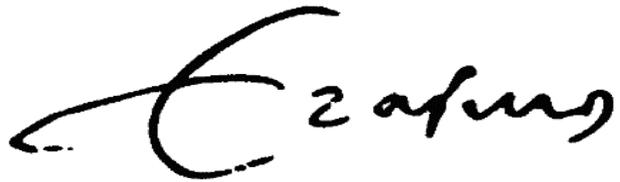


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JOINT DEGREE



UNIVERSITY OF AMSTERDAM



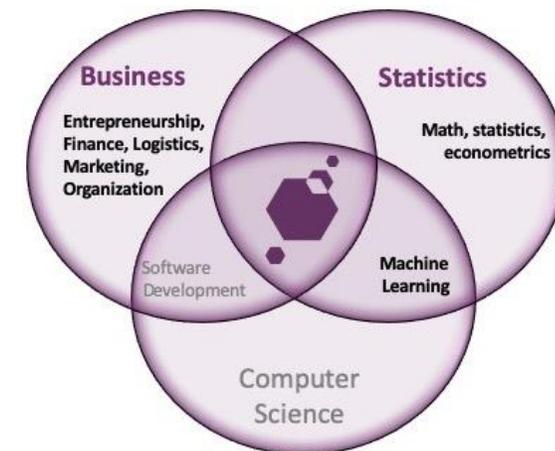
VRIJE
UNIVERSITEIT
AMSTERDAM





TAILORED PHD TRAJECTORY

**25 TALENTED STUDENTS
CLOSE COLLABORATION
WITH FACULTY**



2-YEAR RESEARCH MASTER (120 EC)

HIGHER THEORETICAL LEVEL THAN TRADITIONAL MASTER'S DEGREE



THREE PILARS

DATA SCIENCE FOUNDATION

Acquiring Skills

1st Year

Mathematics, Statistics,  Econometrics, Micro-econometrics, Time-series, Simulation Analysis & Optimization, Parallel Computing & Big Data, Supervised Machine Learning, Unsupervised Machine Learning, Deep Learning, Natural Language Processing

Bayesian Econometrics, Reinforcement Learning, Precision & Forecasting

2nd Year

BUSINESS FOUNDATION

Building Knowledge

Decision Theory for Business
Business Foundation
Visits to Departments

Electives linked to one of our 3 Tracks:

- Quantitative Finance 
- Management Science (Entrepreneurship & Innovation; Human Resources & Organization; Marketing; Strategy; Knowledge and Information Networks) 
- Operation Analytics 

RESEARCH PRACTICE

Aligning Skills & Knowledge

Research Hackathon/Internship

Skill Workshops

Research Master Thesis



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

ANNUAL SCHEDULE

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

Quantitative Finance

Management Science
(Marketing, Innovation, Strategy, Human Resources and Organization Behavior, Knowledge and Information Networks)

Operations Research Analytics

Asset Pricing (4 EC)

Elective (4 EC)
Empirical Asset Pricing, Empirical Corporate Finance, or Market and Systemic Risk Management

Research Hackathon or Internship** (4 EC)

ABRI Elective** (4 EC)

Research Hackathon or Internship** (4 EC)

Integer Linear Programming (4 EC)



ANNUAL SCHEDULE

Second Year

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

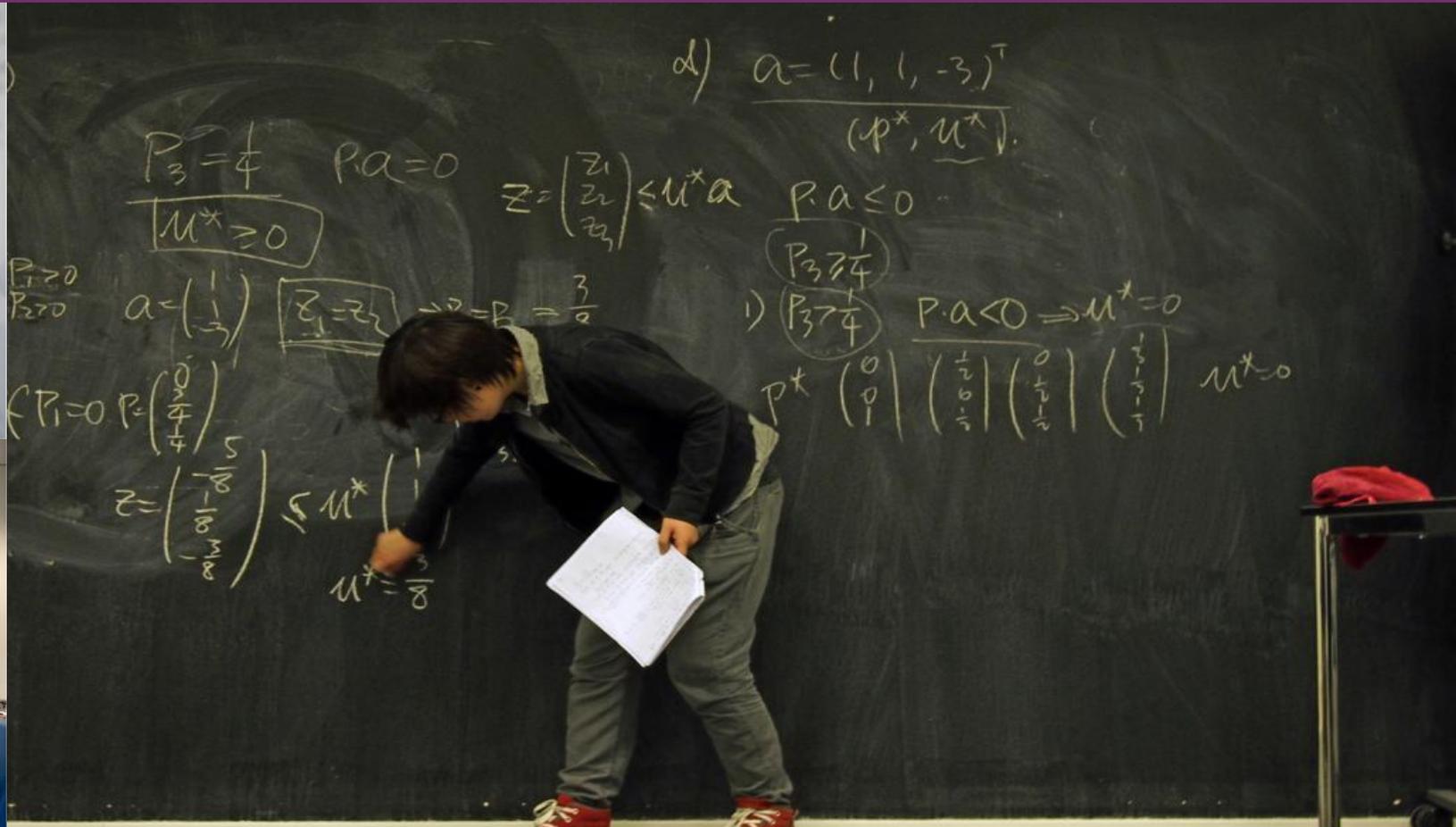
TI/LNMB/Master Math electives

PhD

Tracks



EMPOWERING GROWTH TAILORED SUPPORT FOR EVERY STUDENT'S JOURNEY





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GRADUATE PROGRAM



SUPPORT: DEDICATED LOCATION IN AMSTERDAM





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SUPPORT: STRONG COMMUNITY





SUPPORT: FINANCIAL AIDS

- Apply for Scholarships: e.g., <https://www.eur.nl/en/education/practical-matters/financial-matters/scholarships-grants>
- BDS Support:
 - Year 1: basic, partial, and full scholarships to a small selection of students
 - Year 2: BDS assigns scholarships based on students' performance
- Reimbursement of transportation costs from/to Amsterdam/Rotterdam
- Teaching/Research Assistantship (TA/RA) positions are possible at the end of the first year



TIMELINE

	Year 1: Courses	Find your topic and supervisor – Work as RA
	Year 2: Electives	Thesis – PhD Application
Year 3 - 5: PhD		

After BDS?

- Academia (comparable to other 5-year PhD programs)
- Regulatory bodies (Central banks; regulators (AFM; ESMA); EU institutions, ministries, ...)
- Industry (Banks, large companies with data science needs)

High to excellent earning potential in all the above



ADMISSIONS

Requirements

Bachelor or Master's Degree

High GPA (> 7.5/10)

GMAT >700, GRE >160, TOEFL

(not for students with Dutch degrees)

Passion for Business, Data Science & Research

Programming skills

Deadlines

Rolling admission until June 15, 2024

If interested: email us for a site visit!

(talk to our students & DGS)



www.businessdatascience.nl

Check the website for more info on

- How to contact us
- Admissions & Scholarships
- Events
- Courses & Tracks



Sign up also for summer schools or individual courses

Summer schools or Courses in:

- (Advanced) Machine Learning, Deep Learning, Reinforcement Learning
- Natural Language Programming
- Foundation of Data Analysis & Machine Learning in Python
- Sustainable Finance
- AI@Work





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EXAMPLES OF THESE TOPICS for the MANAGEMENT SCIENCE & OPERATION ANALYTICS TRACKS

Marketing

Retailing (inflation/pricing, marketplaces, omnichannel, channel synergies, metaverse, blockchains, NFTs, etc.); Biases (algorithmic bias, discrimination, diversity, etc.); Branding; New Product Innovation (crowdsourcing, adoption etc.); Marketing-finance; Social media (eWOM, influencer marketing, engagement, multi-platform effects, owned social media, earned social media); Sustainability; Recommendation Systems

Journals: Marketing Science, Journal of Marketing, Journal of Marketing Research, Journal of the Academy of Marketing Science, International Journal of Research in Marketing, Journal of Retailing

Management, Organization, & Information Systems

HR Analytics; AI & wellbeing; Digital transformation; Technology adoption; IT governance; IT development and deployment;
ML for Innovation; ML for Creativity & Entrepreneurship; Data-driven Job matching; Text analyses for Leadership detection; Algorithmic management; Organization & job fit; Talent retention

Journals: Management Science, Information Systems Research, Journal on Computing, MIS Quarterly, Academy of Management Journal, Academy of Management Review, Organization Science, Journal of International Business Studies, Strategic Management Journal

Operation Analytics

Multimedia, Computer vision and Information Retrieval for Improv.; City Livability; Multimodal interactive learning; Conversational Search; Geometric Deep Learning; Legal information retrieval; Recommendation Systems; Optimization for and with machine learning; Robust optimization (Optimization of food supply of World Food Programme); Stochastic systems (Appointment scheduling in healthcare); Explainable machine learning (Rule-based methods and counterfactual explanations)

Journals: Operations Research, Journal of Operations Management, Manufacturing and Service Operations Management, Production and Operations Management