

M.SC. DATA ANALYTICS & DECISION SCIENCE



Our world and businesses in particular face disruptive change due to exponential growth of both the amount of data which can be captured from a wide range of data-sources and the computational capabilities to process the data.

Future experts and managers will need to understand how to leverage Operations Research and Analytics to create value from data – this is what you will learn in our M.Sc. Data Analytics and Decision Science (DDS).

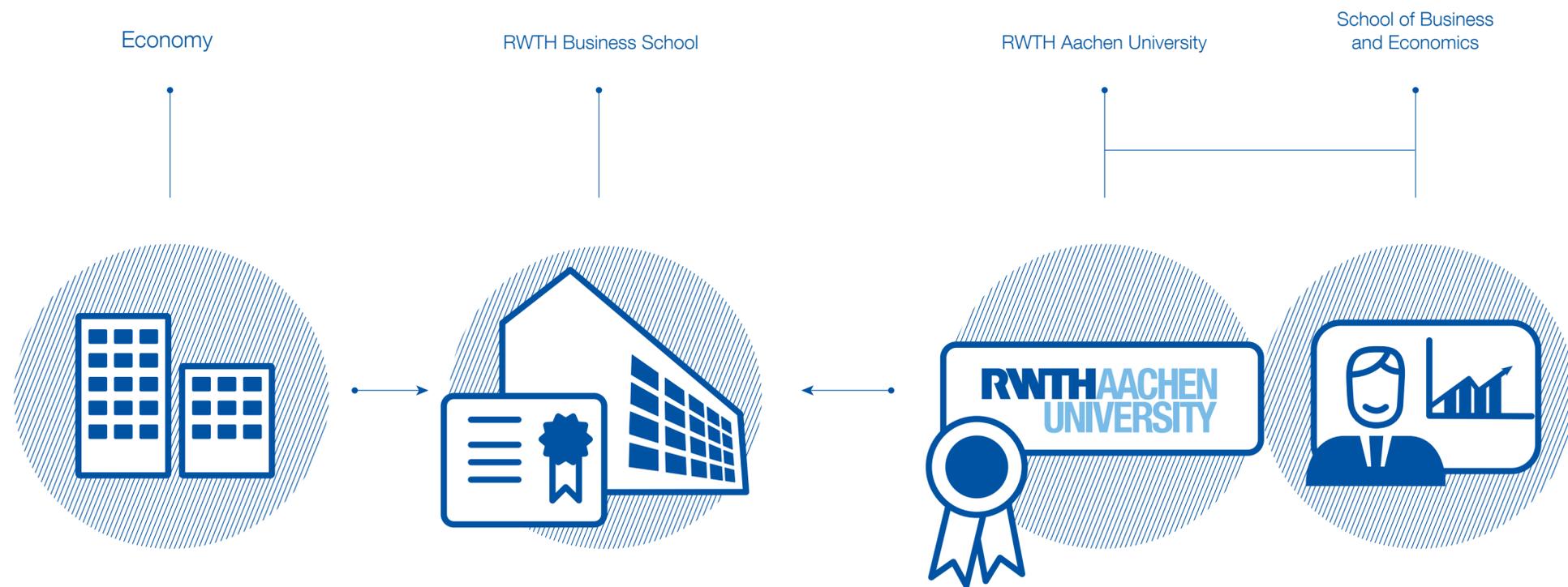
Graduates will learn how to combine machine learning and deep learning techniques with mathematical optimization approaches, heuristic algorithms and simulation techniques to create value in specific application areas – a distinct set of skill needed to succeed in a digitized and globalized economy.



Prof. Michael Schneider

“THE COMBINATION OF DATA SCIENCE AND OPERATIONS RESEARCH IN ONE PROGRAM IS HIGHLY SOUGHT AFTER BY THE INDUSTRY, BUT WE ARE ONE OF THE VERY FEW UNIVERSITIES WORLD-WIDE THAT OFFER A DEDICATED PROGRAM FOSTERING THIS SKILL SET.”

Prof. Dr. Michael Schneider,
Chair holder Deutsche-Post for Optimization of Distribution
Networks RWTH Aachen University & academic director
M.Sc. Data Analytics & Decision Science



RWTH BUSINESS SCHOOL

RWTH Business School builds on the academic excellence of RWTH Aachen University and its School of Business and Economics and offers practice-oriented continuing education programs at the intersection of management and technology for experts and executives.

RWTH Aachen University is one of the largest universities of technology in Europe and was founded in 1870. This long tradition serves not only as a strong scientific and academic foundation, but also as a commitment for the future: RWTH Aachen University draws on strong research networks and the intellectual curiosity of its staff to generate knowledge on challenging scientific issues, transfer leading knowledge and develop solutions that impact today's and tomorrow's challenges.



Interdisciplinary Mindset

Most courses focus on the intersection between technology and decision making, helping you tackle real-world challenges from multiple perspectives and providing you with a truly interdisciplinary mindset.



Student-centered Learning

All courses are based on a participant-centered approach that emphasizes interaction between instructors and participants through case discussions, group presentations, debates, or lab sessions.



Analytics Project

During the Analytics Project, you have the opportunity to work on realworld challenges, enabling you to apply the knowledge gleaned in class while going through almost the entire analytics process to gain hands-on experience.



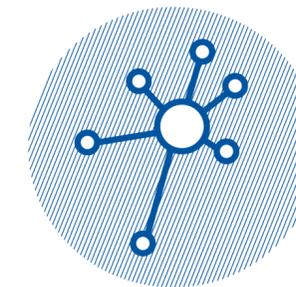
Accreditation

The School of Business and Economics at RWTH Aachen University is one of the few faculties in Germany to bear the international seal of approval of the renowned accreditation agency AACSB.



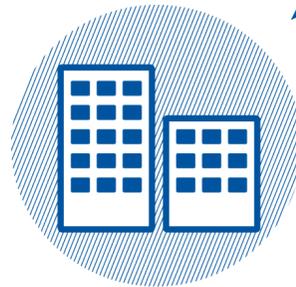
Network

The program will enable you to build a vibrant network of fellow students, lecturers and industry representatives that will last for a lifetime.



Internship

You apply your skills and deepen your knowledge in an industry work placement at global enterprises such as Deutsche Post DHL, BMW, Bosch, and others.

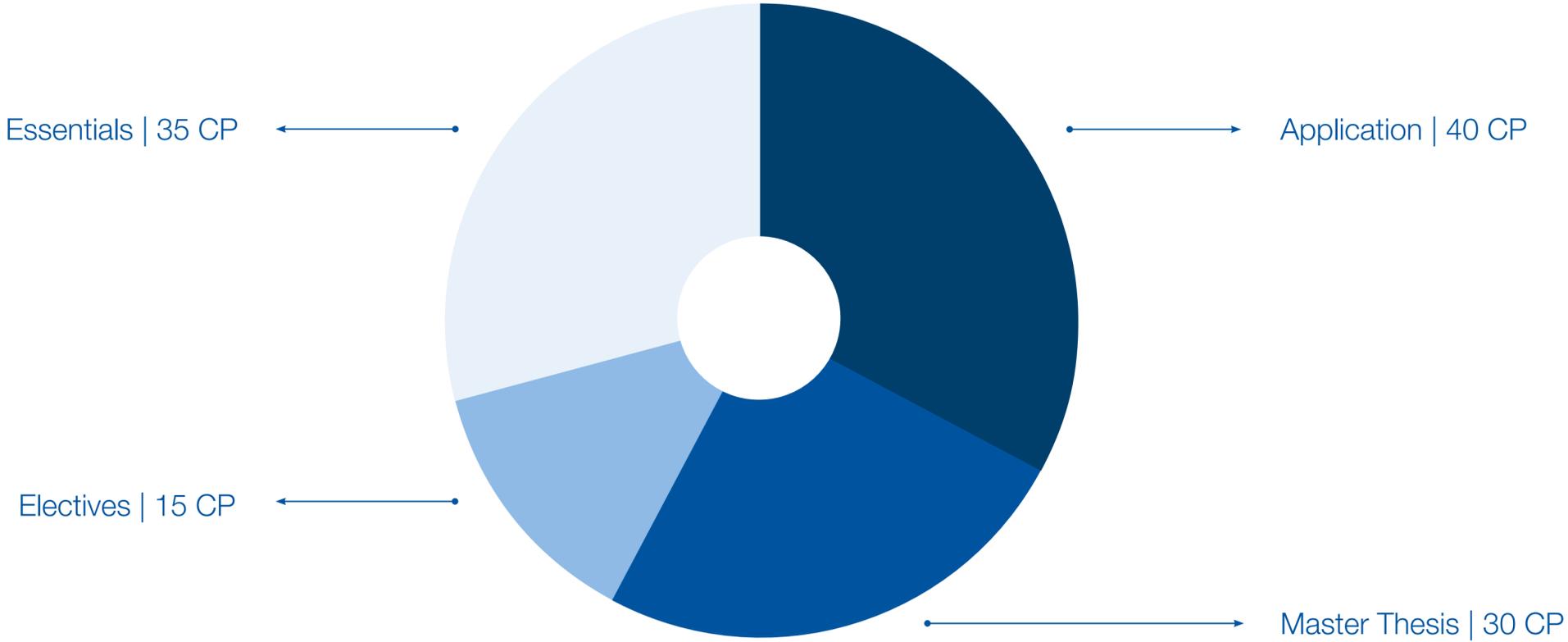


Intercultural Teams

As working in multicultural teams is a given in today's world, most courses feature group projects where you can solve managerial and technological challenges in culturally diverse teams.



WHAT'S IN IT FOR YOU?



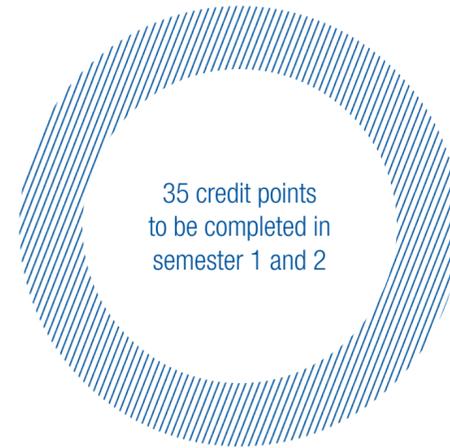
ESSENTIALS

By starting your program with relevant essentials in mathematics, statistics, algorithms and data structures, you not only refresh your previous knowledge but also lay the foundation for successful studies.

Further fundamentals are covered by introducing data handling and data quality, predictive modeling and validation of business- and use-cases, as well as evaluation of predictions.

Additionally, cutting edge developments in machine and deep learning as well as modern concepts and methods behind state-of-the art decision making and optimization models are introduced. Finally, the fundamentals of metaheuristics and the challenges encountered when designing high-performance heuristics for complex planning tasks in different domains are addressed.

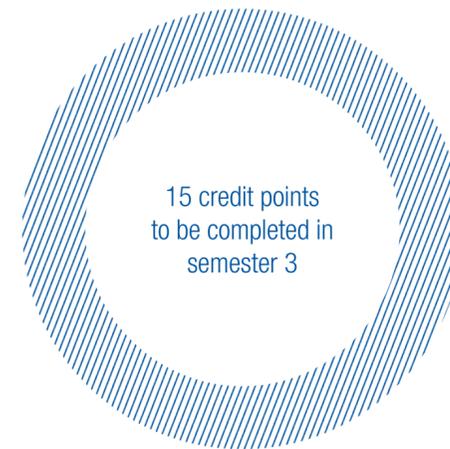
- [Statistics and Mathematics](#)
- [Algorithms and Data Structures](#)
- [Predictive Modeling](#)
- [Machine Learning](#)
- [Optimization Models](#)
- [Design and Analysis of Algorithms](#)
- [Heuristic Optimization](#)



APPLICATION

The whole program follows an application oriented approach combining the fields of data analysis and (data based) decision making: In addition to providing you with necessary theoretical knowledge and data-driven techniques and methods you need to succeed in a digitized economy, the program also offers you detailed insights in potential application areas.

- Digital Operations and Supply Chain Management
- Optimization of Logistics Systems
- Economic Modeling of Energy and Climate Systems



+ Analytics Project | 10 credit points in semester 2

The Analytics Project is a practical module complementing the previous courses. Teams of 3 – 6 students work together on a practically motivated real-life analytics project and go through almost the entire analytics process using machine learning and optimization techniques: starting with the formalization of the problem, until the visualization, interpretation, and documentation of results. During this project work, you learn how to present your results to both a practice-oriented and a scientific audience.

+ Internship | 15 credit points in semester 3

During an internship in the third semester you apply your skills and gain hands-on work experience in an industry work placement at global enterprises such as Deutsche Post DHL, BMW, Bosch, and others. The gained experience is a valuable preparation for the future professional life, also in Germany. You acquire knowledge about technical materials and processes used in current practice as well as corresponding economic considerations and procedures. Equally important are the insights into social processes and structures in the companies. The internship lasts at least 14 weeks.

ELECTIVES

To complement the comprehensive program of core courses for future data scientist and to deepen your managerial competences as well as your knowledge of specific data-related topics, we offer a variety of management and technical elective courses. By continuously reviewing and expanding the set of electives, we strive to cover the latest trends to stay abreast of technological change. Our portfolio of electives thus enables you to tailor the program to your individual needs and interests. You may choose of the following subjects:

- Management and Technology Perspectives
- Strategic Negotiations
- Start-Up and Growth Management
- Service and Technology Marketing
- Advanced Machine Learning
- Principles of Data Mining
- Intelligent Monitoring of Engineering Systems



The high relevance of the M.Sc. DDS attracts talented participants from around the world with a wide range of professional backgrounds.



ADMISSION REQUIREMENTS

If you want to develop as a professional and transform your career, this program will be ideal for you, provided you have:

- A Bachelor's degree in a STEM related field (Science, Technology, Engineering, and Mathematics)
- At least 12 months of professional work experience
- English language proficiency

APPLICATION

Apply before January 15 to benefit from our Early Bird discount on the entire tuition fee!

Our online application portal opens on October 1. Non-EU applicants can apply until March 1. EU applicants and international applicants who hold an academic degree from a European university can apply until July 15.

Our application process is entirely online and there is no application fee.

QUICK FACTS

Duration:

4 semesters

Degree:

Master of Science
RWTH Aachen University

Language:

English

Costs:

30,000 €

Early Bird:

until January 15
3,000 € discount

Start:

October 1 of each year



ANY QUESTIONS?

Mandy Bollinger
Team Leader Master Programs

+49 241 80 27616
master@business-school.rwth-aachen.de
[https://www.business-school.rwth-aachen.de/en/
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