

5 Good Reasons ...

... for the M.Sc. Industrial Mathematics and Data Analysis at the University of Bremen:

1. Industry-oriented study
2. Research-based learning
3. International program
4. Individual + dedicated supervision
5. Excellent career prospects

Program at a Glance

Standard Period of Study

4 semesters

Language

English

Degree

Master of Science

Scope of Study

120 CP

Application

Prerequisites

- Bachelor's degree accumulating at least 180 credit points (ECTS).
- Including at least 90 ECTS on mathematical courses.
- Plus at least 24 ECTS in either physics, engineering, or computer science.
- English language proficiency corresponding to at least CEFR-level B2.
- German language proficiency corresponding to at least CEFR-level A1.

Restrictions

None, open admission

Deadlines

April 30 (Winter semester)

October 31 (Summer semester)

Contact and Advice

Student Counselling and Study Center for all Math Programs

Building / room: MZH 1300

Phone +49 421 218 - 63744

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Scan for more information

<http://unihb.eu/advisoryoffice>



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As of 08/2022



University
of Bremen

Faculty 03
Mathematics and
Computer Science

Master's Program

Industrial Mathematics and Data Analysis



Extend your career!

You have successfully completed a Bachelor's degree and would like to gain further qualifications as part of an international advanced degree program? You want to study more exciting applied mathematics at the cutting edge of current research and industrial utilizations? Then our Master program Industrial Mathematics and Data Analysis is perfect for you!

What's special about this program?

Industrial math, as a young discipline of applied mathematics, focuses on using modern mathematical methods to solve problems from science, engineering, and industry. Recently, mathematical foundations and algorithms for analyzing big data have become a key part of this.

Through the transfer activities of the Center for Industrial Mathematics, students are introduced to modern mathematical methods at an early stage in order to apply them to concrete problems. The Center provides the opportunity for students to work on exciting applications and industrial projects parallel to their studies.



Course contents

The starting point are two lectures on “Mathematical Methods for Data Analysis and Image Processing” and on “Numerical Methods for PDE”. Based on these you choose either data analysis or industrial math for specialization. In the following semesters elective lectures and seminars are taken. Topics may be: Machine Learning, Inverse Problems, Applied Statistics, Parameter Identification (branch data analysis) and Optimal Control, Discrete Optimization, Adaptive FEM (branch industrial math).

Central to this Master's program is the “Modelling Project”: teams of students are assigned real-world problems in cooperation with our partners from industry and institutes. They use mathematical modelling and analysis combined with numerical simulations to solve these.

The mathematical part is accompanied by courses from a technical application area. Each student chooses either electrical engineering, mechanical engineering, geosciences, applied physics, or computer science as a minor subject.

Perspectives

The Master's degree in Industrial Math and Data Analysis is a perfect starting point for your future career. It opens up a wide range of possible fields in industrial research and development, in consulting for data analysis and AI or in various other branches. A PhD, perhaps as a start for a scientific career, is another option.

The City of Bremen

Bremen is a city of around 500,000 people in North-west Germany. The river Weser runs through the city, and the coast of the North Sea is not far away. It has a history of more than 1,200 years and today, it is a modern European center for the space and aeronautics industries. The university opened its doors in 1971 and is connected closely to the city as well as to the local companies.

| Sem. | Foundations (33 CP) | | Area of Specialization (here: Data Analysis, 57 CP) | | Extension | | Minor Subject |
|------|--|---|---|---|--|---|--|
| 1. | Numerical Methods for PDEs 9 CP | Math Methods for Data Analysis and Image Processing 9 CP | Special Topics Data Analysis 9 CP | Special Topics Data Analysis 9 CP or Advanced Communications Data Analysis 9 CP | Special Topics Industrial Math 9 CP | Advanced Communications Industrial Math 9 CP | Modules from one Technical Application Area 12 CP |
| 2. | Modelling Project 15 CP (6 CP + 9 CP) | | Special Topics Data Analysis 9 CP | | | | |
| 3. | | | | | | | |
| 4. | | | Master Thesis 30 CP | | | | |