

# Mathematics for Business and Industry, M.Sc.

Practice-oriented. International. Interdisciplinary.

|                                     |  |                              |                                    |  |                         |  |                                |
|-------------------------------------|--|------------------------------|------------------------------------|--|-------------------------|--|--------------------------------|
| SUMMER TERM<br>2026<br>(28 CP)      | NUMERICAL PARTIAL DIFFERENTIAL EQUATIONS (IDM) | NONLINEAR OPTIMIZATION (IDM) | INVERSE PROBLEMS AND IMAGING (IDM) | REINSURANCE PRICING (APM)              | ADVANCED ROBOTICS (APM) | GENERATIVE NEURAL NETWORKS (APM)                 | PROJECT (MM)                   |
| WINTER TERM<br>2026/2027<br>(30 CP) | STATISTICAL INFERENCE (IDM)                    | NUMERICAL OPTIMIZATION (IDM) | PUBLIC KEY CRYPTOGRAPHY (IDM)      | BIOPHYSICAL INFORMATION MEDICINE (APM) | NEURAL NETWORKS (APM)   | NUMERICAL METHODS IN FINANCIAL MATHEMATICS (APM) | MODERN PROJECT MANAGEMENT (MM) |
| SUMMER TERM<br>2027<br>(32 CP)      | MASTER THESIS WITH PRESENTATION (MM)           |                              |                                    |  |                         |  | ADVANCED SEMINAR (MM)          |

## ALL COURSES TAUGHT IN ENGLISH

- Solid FOUNDATION IN ADVANCED MATHEMATICS through **IN-DEPTH MODULES (IDM)**
- Strong focus on REAL-WORLD APPLICATIONS via **APPLICATION MODULES (APM)** in ACTUARIAL SCIENCES, ARTIFICIAL INTELLIGENCE, and INFORMATION TECHNOLOGY
- DEEPEN YOUR EXPERTISE and DIVE INTO CUTTING-EDGE TOPICS with **ADDITIONAL APPLICATION MODULES** like POST-QUANTUM CRYPTOGRAPHY, COMPUTER VISION, STATISTICAL LEARNING IN ACTUARIAL SCIENCES, AND DATA SCIENCE
- Boost your INTERDISCIPLINARY PROFILE with selected **APPLICATION MODULES IN COMPUTER SCIENCE** – including MODERN DATABASE CONCEPTS, ADVANCED TOPICS IN NLP
- OPTIONAL: complete 1 OR 2 INDIVIDUAL **RESEARCH PROJECTS** in place of selected modules – ideal for deep dives into SPECIALIZED OR PRACTICE-DRIVEN TOPICS
- **MANDATORY MODULES (MM)**: MODERN PROJECT MANAGEMENT, ADVANCED SEMINAR, PROJECT – preparing for TEAM-BASED and INDEPENDENT WORK