

What master's options are open to me after I graduate from this programme?

The University offers the English-taught M.Sc. Computational Mathematics programme, which is accessible through this bachelor's degree. Furthermore, depending on your choice of elective modules, this degree gives you access to master's programmes in computer science, international economics and business, and business administration.

Features

- **Integrated bridge course** in the first semester to facilitate transition from secondary school to university
- **Excellent staff-student ratio**
- **Joint degree option** for students enrolled in a teacher training programme with mathematics as a teaching subject
- The only mathematics programme in Germany that offers **Data Science** as an elective
- **Integrated subject-specific English language training** with option to sit the subject-specific language examination
- **A great student experience** on one of Germany's loveliest university campuses

Entry requirements

For the application procedure, deadlines and required documents, visit www.uni-passau.de/en/apply

Good German language skills at level C1 of the Common European Framework of Reference for Languages (CEFR) are required for this degree programme, as it is taught in German.

If you need to learn German first, we have the right language programme for you: www.uni-passau.de/en/learn-german

Further information and contact details

Programme page on the web

www.uni-passau.de/en/bsc-maths

Faculty of Computer Science and Mathematics

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Phone: +49 851 509 3001

E-mail: dekanat@fim.uni-passau.de

www.fim.uni-passau.de/en

Academic Advice Service

Primary contact for prospective international students seeking advice on study options and entry requirements

Innstr. 39, 94032 Passau, Germany

E-mail: advice@uni-passau.de

www.uni-passau.de/en/academic-advice

International Office

Assists international students with immigration formalities and getting settled in Passau

www.uni-passau.de/en/international

Student Registration Office

Contact for enquiries related to your application

www.uni-passau.de/en/student-registration-office

Language Centre

Offers a wide range of language courses

www.sprachenzentrum.uni-passau.de/en

Centre for Careers and Competencies

Helps students seeking internships or career entry positions and offers transferable skills courses

www.uni-passau.de/en/zkk

iStudi Coach for job market induction

Provides job market orientation and advice on internship and job search to international students

www.uni-passau.de/en/iStudi

German Courses Passau

German language courses for international students

www.uni-passau.de/en/learn-german



Bachelor of Science in Mathematics



Why study mathematics?

Are you an inquisitive person who likes getting to the bottom of things? Do you enjoy solving the odd brain teaser? And when you're working on one, do find you can't stop until you've come up with a solution?

Mathematics is the art of solving problems

Mathematics is both art and science; it is language, precision and beauty. It is also of fundamental importance to nearly all academic disciplines and an indispensable prerequisite for the development of almost any modern technology you could think of.

This degree programme teaches you a wide range of fundamental structures and methods in mathematics, imparting the necessary foundations of mathematical knowledge and skills to further maximise your choices after you graduate: building on the B.Sc. Mathematics, you can continue your studies and specialise in the mathematical field, follow up with a cross-disciplinary second degree, or alternatively enter the job market in a field that calls for a strongly mathematical background.

Once you graduate from this degree programme, you can follow up with a master's degree programme, such as our English-taught M.Sc. Computational Mathematics.

Degree awarded	Bachelor of Science (B.Sc.)
Duration and ECTS	6 semesters; 180 ECTS credits
Starts in	October (winter semester)
Language of instruction	German



Career prospects

Mathematicians have outstanding career prospects, as they are highly sought after wherever high-level analytical thinking skills are a requirement. Mathematicians find employment in almost every segment of the public and private sector.

Many mathematicians find work in the financial services industry, in consulting and auditing, market research, logistics, pharmaceuticals and IT, as well as in the research and development departments of high-tech companies. Graduates aiming for a scientific career path at a university or research institute can continue by studying for a master's degree.

Programme syllabus

You will gain the ability to put problems into precise terms, train your conceptual, analytical abstract thinking, logical reasoning and the ability to discover underlying patterns and analogies. You will learn to recognise mathematical relationships in a wide variety of areas, and how to formalise and analyse them. You will develop models of complex theoretical or pragmatic problems and learn to select the appropriate mathematical approach to solving them. This programme places an emphasis on teamwork and oral and written presentation of mathematical facts, as well as on logically sound and consistent analysis and reasoning.

The degree programme is balanced in terms of its theoretical and pragmatic aspects, providing students with a wide-ranging mathematical education while at the same time adopting an application-orientated approach. You will learn the basics of programming and the use of mathematical software, as well as having access to a comprehensive range of courses on algorithmic mathematics – such as cryptography, computer algebra, image and signal processing, statistics, stochastic simulations and many more.

Available electives

Computer science is a classic elective for mathematics, as it fits well into the algorithmic direction of the programme and offers additional career prospects, since there is a dearth of IT specialists in the industry. A joint degree in mathematics and the teacher training programme for secondary schools (Gymnasium) with mathematics/computer science as the teaching subjects can be completed in just 10 semesters. This is only one semester more than the standard length of study for the teacher education programmes.

Data science: This strongly interdisciplinary elective is only offered by the University of Passau. If you choose this elective you will study data management and data analysis processes, particularly for large data volumes ('Big Data'), and learn how they are used in the social sciences and humanities. 'Big Data Analytics' is set to become a key occupational area in the future, and demand for experts in this field is already rising rapidly.

Economics: Did you know that many famous economists started out as mathematicians? Mathematical knowledge is paramount for understanding relationships and models in a wide range of economic fields, e.g. in international finance, game theory, macroeconomics and econometrics. Studying this elective qualifies you for research work and occupations in the financial services industry, in the manufacturing and service sectors, consultancy, in ministries, associations and international institutions.

Quantitative business studies: This elective teaches you comprehensive business knowledge, placing the focus on the quantitative approach to business problems from all related disciplines, including accountancy and management accounting, marketing, production, technology, innovation management and of course problems specific to the financial sector. This elective expands your job market potential, particularly if you are considering a career in the private sector or in management.

Business and economics didactics: This elective is offered to students enrolled simultaneously in the teacher education programme for Gymnasium with mathematics and business/economics as their teaching subjects. Taking this route, you will need only one semester longer than the standard period of study to gain the B.Sc. Mathematics jointly with your teacher training programme and open up vast new employment prospects – an important choice to make before the background of a diminishing demand for teachers at Gymnasium-type secondary schools in Germany.

