

# Master's Programs in Mathematics

TUM Masters' Days 2023

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20 March 2023

# Studying Mathematics

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# Mathematics @ TUM

- top address in mathematics
- wide variety of courses
- great choice of minor modules
- great reputation in the labor market
- specialized degree programs
- English as language of instruction

# Study Programs @ TUM

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# Study Programs

Mathematics



Math. Fin. & Act. Science



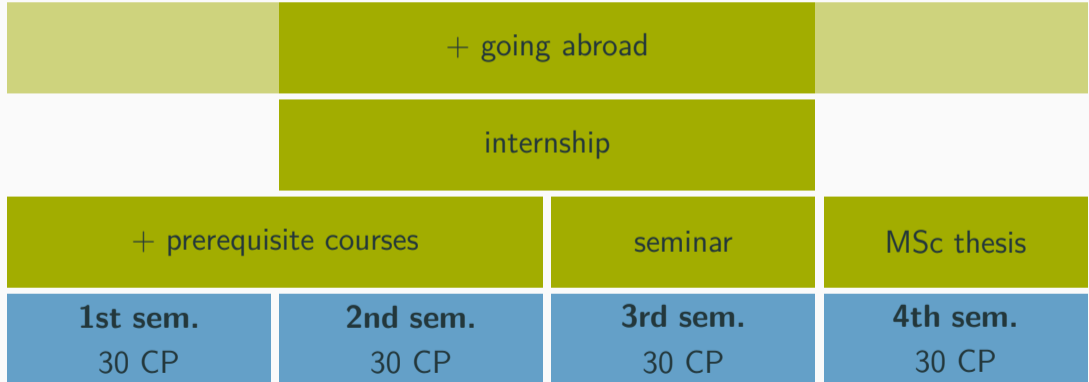
Math. in Science & Engineering



Math. in Data Science



# General Structure



# Math. Finance & Actuarial Science

- Finance, Risk, Portfolio Theory
- Insurance Mathematics
- Econometrics, Management



A word cloud of finance-related terms. The words are arranged in a cluster, with 'Insurance' and 'Finance' being the largest. Other words include 'Banking', 'Investment', 'Risk', 'Taxes', 'Controlling', 'Auditing', 'Management', 'Software', 'Analytics', and 'Consultancy'. The colors range from dark red to yellow.

Insurance  
Risk  
Taxes  
Controlling  
Auditing  
Finance  
Investment  
Banking  
Management  
Software  
Analytics  
Consultancy



# Math. Finance & Actuarial Science

## Modules

- specialization:  
math. finance or act. science
- prob. theory / statistics
- applied / pure math
- management

## Specific Prerequisites

- math bachelor
- intro in prob. and stat.
- measure-theoretic prob. theory





# Mathematics in Data Science

- Statistics, Data Analytics, Optimization
- Machine Learning, Data Engineering
- Computer Science



# Mathematics in Data Science

## Modules

- Foundations in DA / DE
- DA (MA): Statistics, Optimization, Math. Foundations of ML
- Analytics (MA/IN): Data Mining, Machine Learning
- DE (IN): Database Systems, Cloud Computing

## Specific Prerequisites

- math bachelor
- informatics minor
- algorithms
- databases



# Mathematics in Science & Engineering

- Scientific Computing
- Applied Analysis
- Applications: Engineering, Health, Informatics, ...



# Mathematics in Science & Engineering

## Modules

- Applied Analysis
- Scientific Computing
- Optimization
- Case Studies
- Applications (individual specialization)

## Specific Prerequisites

- math bachelor
- vector analysis
- differential equations
- numerics



# Mathematics

- wide variety of subjects
- optional area of concentration
- optional minor



# Mathematics

## Optional Specialization

- Analysis & PDE
- Algebra & Geometry
- Probability
- Scientific Computing
- Optimization
- Biomathematics

## Optional Minor

- Informations
- Physics
- Economics
- Chemistry, Life Sciences



# Application & Prerequisites

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# Prerequisites

- math bachelor (or closely related)
- good grades
- qualifications: advanced math modules, specific modules
- letter of motivation
- language certificate (EN/DE, unless BSc language of instruction)
- document verification: uni-assist (non-EEA)





# Prerequisites (Science & Engineering)

- math bachelor (or closely related)
- good grades
- qualifications:  
advanced math modules, specific modules
- letter of motivation
- language certificate (**EN**, unless BSc language of instruction)
- document verification: uni-assist (non-EEA)



# Prerequisites (Data Science)

- math / **informatics** bachelor
- good grades
- sufficient qualifications:  
math & **info** modules, specific modules
- letter of motivation
- **essay**
- language certificate (**EN**, unless BSc language of instruction)
- **possibly GRE**
- document verification: uni-assist (non-EEA)



# Questions

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Math. Finance & Actuarial Science



Data Science (incl. applications)



Science & Engineering



Mathematics



Applications (excl. Data Science)