Technology
Arts Sciences

TH Köln

Course
AM - Applied Mathematics

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⌃ General information

Long name	Applied Mathematics
Approving CModule	AM_BaET
Responsible	Prof. Dr. Beate Rhein Professor Fakultät IME
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	96
ECTS	5
Professors	Prof. Dr. Beate Rhein Professor Fakultät IME
Requirements	Apply basic mathematical knowledge, especially functions and differential calculus Be able to apply methods of linear algebra Apply basic concepts of programming
Language	German
Separate final exam	Yes

Final exam

Details

The theoretical basics and the associated calculation methods are tested in a written exam. The programming skills required to implement an algorithm are tested in a programming test.

Minimum standard

Both parts of the examination must be passed with at least 4.0. The written exam and the programming test are included proportionally in the module grade. The weighting is currently 70% for the written exam and 30% for the programming test.

Exam Type

The theoretical basics and the associated calculation methods are tested in a written exam. The programming skills required to implement an algorithm are tested in a programming test.

^ Lecture / Exercises

Learning goals

Knowledge

Computer arithmetic

Error calculation, condition of a matrix

Gaussian algorithm with column pivoting

Interpolation

Root finding algorithms (bisection, Newton, variants of Newton, fixed point iteration)

Iteration methods for systems of linear equations

Regression analysis

Probability theory

Skills

be able to estimate the propagation of measurement errors

be able to apply and code numerical algorithms

be able to set up trend functions

be able to handle probabilities

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1
Exercises (shared course)	0
Tutorial (voluntary)	0

Separate exam