Module title: Overview Applied Mathematics
Abbreviation: 10-M-ANW-Ü-131-m01

Module coordinator: Dean of Studies Mathematik (Mathematics)
Module offered by: Institute of Mathematics

ECTS: 12
Method of grading: numerical grade
Duration: 1 semester
Module level: undergraduate
Other prerequisites: --

Contents:
Two of the following topics in applied mathematics:
- **Numerical Mathematics 1** (Solution of systems of linear equations and curve fitting problems, nonlinear equations and systems of equations, interpolation with polynomials, splines and trigonometric functions, numerical integration)
- **Numerical Mathematics 2** (Solution methods and applications for eigenvalue problems, linear programming, initial value problems for ordinary differential equations, boundary value problems)
- **Stochastics 1** (Combinatorics, Laplace models, selected discrete distributions, elementary measure and integration theory, continuous distributions: normal distribution, random variable, distribution function, product measures and stochastic independence, elementary conditional probability, characteristics of distributions: expected value and variance, limit theorems: law of large numbers, central limit theorem)
- **Stochastics 2** (Elements of data analysis, statistics of data in normal and other distributions, elements of multivariate statistics)

Intended learning outcomes:
The student knows and masters the fundamental methods and notions of some field in applied mathematics. He/She is acquainted with the central concepts and algorithms in this field, can apply them independently and knows about the possibilities and limitations of their applicability.

Courses:
- V + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment:
- Oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the sub-field dealt with in module 10-M-ANW-G as well as an additional sub-field of applied mathematics as selected by the candidate
- Language of assessment: German, English

Allocation of places:
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Additional information:
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Referred to in LPO I:
- Examination regulations for teaching-degree programmes

Module appears in:
- Bachelor’ degree (1 major) Mathematics (2014)