## Module title
Mathematics 1 and 2 for students of Functional Materials

## Abbreviation
10-M-FUN12-122-m01

## Module coordinator
Dean of Studies Mathematik (Mathematics)

## Module offered by
Institute of Mathematics

## ECTS
18

## Method of grading
numerical grade

## Only after succ. compl. of module(s)
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## Duration
2 semester

## Module level
undergraduate

## Other prerequisites
By way of exception, additional prerequisites are listed in the section on assessments.

### Contents
Basics on numbers and functions, sequences and series, elementary functions, differential and integral calculus in one variable, vector calculus, linear maps and systems of linear equations, matrix calculus, eigenvalue theory, differential and integral calculus in several variables, differential equations, Fourier analysis, integral theorems.

### Intended learning outcomes
The student gets acquainted with important concepts and methods of mathematics. He/She learns to apply these methods to problems in natural and engineering sciences, in particular in the technology of functional materials, and is able to interpret the results.

### Courses (type, number of weekly contact hours, language — if other than German)
This module comprises 2 module components. Information on courses will be listed separately for each module component.

- 10-M-FUN12-1-122: V + Ü (no information on SWS (weekly contact hours) and course language available)
- 10-M-FUN12-2-122: V + Ü (no information on SWS (weekly contact hours) and course language available)

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

#### Assessment in module component 10-M-FUN12-1-122: Mathematics 1 for students of Functional Materials
- 10 ECTS, Method of grading: (not) successfully completed
- written examination (approx. 90 to 120 minutes, usually chosen) or oral examination of one candidate each (approx. 20 minutes) or oral examination in groups (groups of 2, approx. 30 minutes)
- Language of assessment: German, English if agreed upon with the examiner
- Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

#### Assessment in module component 10-M-FUN12-2-122: Mathematics 2 for students of Functional Materials
- 8 ECTS, Method of grading: numerical grade
- written examination (approx. 90 to 120 minutes, usually chosen) or oral examination of one candidate each (approx. 20 minutes) or oral examination in groups (groups of 2, approx. 30 minutes)
- Language of assessment: German, English if agreed upon with the examiner
- Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will
Students put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

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<td>Bachelor' degree (1 major) Functional Materials (2012)</td>
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