

Module Handbook (<https://modhb.uni-kl.de/>)

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## Course MAT-10-11A-K-2

Fundamentals of Mathematics I: Analysis (4V+2U+2T, 9.0 LP)

### Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
-	K	Lecture with exercise classes and tutorials (V/U/T)	9.0 CP	158 h
4	V	Lecture		56 h
2	U	Exercise class (in small groups)		28 h
2	T	Tutorial		28 h
<b>(4V+2U+2T)</b>			<b>9.0 CP</b>	<b>112 h</b> <b>158 h</b>

### Basedata

SWS	4V+2U+2T
CP, Effort	9.0 CP = 270 h
Position of the semester	1 Sem. in WiSe/SuSe
Level	[2] Bachelor (Fundamentals)
Language	[DE] German
Lecturers	Lecturers of the department Mathematics
Area of study	[MAT-GRU] Mathematics (B.Sc. year 1 and 2)
Lifecycle-State	[NORM] Active

#### Notice

To prepare for the course, it is recommended to participate in the Online Mathematics Bridge Course (OMB+), see <https://www.mathematik.uni-kl.de/omb/> (<https://www.mathematik.uni-kl.de/omb/>)

The course is also offered as distance learning course as part of the early entrance programme FiMS, see <https://fims.mathematik.uni-kl.de> (<https://fims.mathematik.uni-kl.de>)

Possible Study achievement (Übungsschein Grundlagen der Mathematik I: Analysis)

- Verification of study performance: **proof of successful participation in the exercise classes (incl. written examination)**

Qualified proof of successful participation in the exercise classes requiring active participation in the exercises, successful completion of homework and passing the final exam for the exercise classes (intermediate exam in the middle of the lecture period and final exam approx. two weeks after the end of the lecture period).

## Contents

- real and complex numbers (axiomatically),
- sequences, limits and series, power series; elementary functions,
- continuity,
- differentiation (one-dimensional),
- integration (one-dimensional).

## Literature

- O. Forster: Analysis 1
- H. Heuser: Lehrbuch der Analysis, Teil 1
- M. Barner, F. Flohr: Analysis I
- K. Königsberger: Analysis 1

## Materials

Further literature will be announced in the lecture(s); exercise material is provided.

## Registration

Registration for the exercise classes via the online administration system URM (<https://urm.mathematik.uni-kl.de> (<https://urm.mathematik.uni-kl.de>)).

## Requirements for attendance (informal)

None

## Requirements for attendance (formal)

None

## References to Course [MAT-10-11A-K-2]

Module	Name	Context	
[MAT-10-11-M-2 (/mhb/modules/MAT-10-11-M-2/)]	Fundamentals of Mathematics A: Linear Algebra I and Analysis I	P: Obligatory	4V+2U+2T, 9.0 LP
[MAT-10-11P-M-2 (/mhb/modules/MAT-10-11P-M-2/)]	Fundamentals of Mathematics I (for Students of Physics)	P: Obligatory	4V+2U+2T, 9.0 LP
[MAT-10-12L_ERW-M-2 (/mhb/modules/MAT-10-12L_ERW-M-2/)]	Fundamentals of Mathematics B: Linear Algebra II and Analysis II	P: Obligatory in Obligatory-Modulteil #A (Exercise Classes Fundamentals of Mathematics I)	2U+2T, 4.0 LP
[MAT-10-1-M-2 (/mhb/modules/MAT-10-1-M-2/)]	Fundamentals of Mathematics	P: Obligatory in Obligatory-Modulteil #A (Fundamental of Mathematics I)	4V+2U+2T, 9.0 LP
[PHY-M1-M-2 (/mhb/modules/PHY-M1-M-2/)]	Fundamentals of Mathematics (for Physics)	P: Obligatory in Obligatory-Modulteil #A (Grundlagen der Mathematik I)	4V+2U+2T, 7.0 LP