Subdivided Module Catalogue
for the Subject

Didactics in Mathematics (Primary School)
as Didaktikfach
with the degree "Erste Staatsprüfung für das Lehramt an Grundschulen"

Examination regulations version: 2009
Responsible: Institute of Mathematics
Abbreviations used

Course types: E = field trip, K = colloquium, O = conversatorium, P = placement/lab course, R = project, S = seminar, T = tutorial, Ü = exercise, V = lecture

Term: SS = summer semester, WS = winter semester

Methods of grading: NUM = numerical grade, B/NB = (not) successfully completed

Regulations: (L)ASPO = general academic and examination regulations (for teaching-degree programmes), FSB = subject-specific provisions, SFB = list of modules

Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

LASPO2009

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

23-May-2012 (2012-82)

25-Sep-2014 (2014-65)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.
The subject is divided into

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Module title
Mathematics in German Grundschule (Arithmetic, Geometry and Application of Mathematics)

Abbreviation
10-M-MGS-092-m01

Module coordinator
Dean of Studies Mathematik (Mathematics)

Module offered by
Institute of Mathematics

ECTS
10

Method of grading
numerical grade

Only after succ. compl. of module(s)
--

Duration
2 semester

Module level
undergraduate

Other prerequisites
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Contents
Discussion of central topics in teaching mathematics in Grundschule taking into account subject-specific and didactic aspects as well as possibilities of implementation in the classroom, also including modern technologies.

Intended learning outcomes
The student is acquainted with the mathematical basics of elementary school mathematics and can explain them. He/She knows about the objectives of teaching mathematics in elementary school, fundamentals of developmental psychology and didactics of mathematics, as well as important models, presentations and media which can be employed in teaching mathematics in elementary school. She/he knows about common difficulties and problems of pupils in the acquisition of mathematical skills, and can employ didactical principles and teaching and learning strategies.

Courses (type, number of weekly contact hours, language — if other than German)
This module comprises 3 module components. Information on courses will be listed separately for each module component.

• 10-M-MGS-P-092: M (no information on SWS (weekly contact hours) and course language available)
• 10-M-MGS-1-092: V + Ü (no information on SWS (weekly contact hours) and course language available)
• 10-M-MGS-2-092: 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 can be chosen to earn a 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-MGS-P-092: Mathematics in German Grundschule (Exam in Arithmetic, Geometry and Application of Mathematics)
• 1 ECTS, Method of grading: numerical grade
• written examination (approx. 120 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 15 minutes) or an oral examination in groups (groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or by a written and/or multi-media portfolio (as announced)
• Only after successful completion of module components: Successful completion of the two module components 10-M-MGS-1 and 10-M-MGS-2 is a prerequisite for participation in module component 10-M-MGS-P.

Assessment in module component 10-M-MGS-1-092: Mathematics in German Grundschule (Arithmetic)
• 5 ECTS, Method of grading: (not) successfully completed
• exercises: At the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed.

Assessment in module component 10-M-MGS-2-092: Mathematics in German Grundschule (Geometry and Application of Mathematics)
• 4 ECTS, Method of grading: (not) successfully completed
• exercises: At the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed.
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**Contents**

Discussion of basic topics in mathematics didactics with a focus on didactic aspects (e.g. dyscalculia, evaluation of teaching materials for mathematics in Grundschule, using computers for teaching mathematics in Grundschule, selected topics and research results in modern mathematics didactics, theoretical foundations of mathematics didactics, dealing with heterogeneity in the classroom, organising substantial learning environments).

**Intended learning outcomes**

The student is acquainted with theoretical concepts in the didactics of mathematics, knows important aspects of planning and analysing teaching of mathematics, masters different strategies for teaching and learning and can assess and employ them.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (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 can be chosen to earn a bonus)

a) talk (approx. 60 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (approx. 5 to 15 pages)

Assessment offered: once a year, winter semester

**Allocation of places**

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**Additional information**

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**Referred to in LPO 1** (examination regulations for teaching-degree programmes)

§ 36 (1) 7. Didaktik der Grundschule Mathematik
Module title: Methodology of Teaching in Mathematics (German Grundschule)

Abbreviation: 10-M-DMGS-092-m01

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

ECTS: 3
Method of grading: Only after succ. compl. of module(s)

Duration: 1 semester
Module level: undergraduate
Other prerequisites: --

Contents:
Discussion of topics in the methodology of teaching mathematics; e.g. support for pupils who are particularly weak or particularly strong in mathematics, dealing with heterogeneity in the classroom, organisation of substantial learning environments as well as possibilities of implementation in the classroom, also including modern technologies.

Intended learning outcomes:
The student knows about possibilities to promote mathematical skills, criteria for assessing media and their use in teaching mathematics and important aspects in planning and analysing the teaching of mathematics. He/She is acquainted with learning and teaching strategies and can employ and assess them.

Courses:
(type, number of weekly contact hours, language — if other than German)
S (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 can be chosen to earn a bonus)
a) talk (approx. 45 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (approx. 5 to 15 pages)
Assessment offered: once a year, summer semester

Allocation of places:
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Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 36 (1) 7. Didaktik der Grundschule Mathematik
### Module title
E-Learning and Blended Learning in Mathematics at school

### Abbreviation
10-M-DVHB-092-m01

### Module coordinator
Dean of Studies Mathematik (Mathematics)

### Module offered by
Institute of Mathematics

### ECTS
3

### Method of grading
Only after succ. compl. of module(s)

### (not) successfully completed
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### Duration
1 semester

### Module level
undergraduate

### 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. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incorporated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successfully completed, the lecturer will put the registration for assessment into effect at the end of the course.

### Contents
In a course offered by Virtuelle Hochschule Bayern (vhb), the student becomes acquainted with and reflects on techniques in e-learning and blended learning for teaching mathematics.

### Intended learning outcomes
The student is acquainted with basic methods of e-learning and blended learning in teaching mathematics, as well as their potentials and limitations.

### Courses (type, number of weekly contact hours, language — if other than German)
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 can be chosen to earn a bonus)
web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)

### Allocation of places
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### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
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### Module title
Basics in Arithmetics (virtual course)

### Abbreviation
10-M-VHBAri-092-m01

### Module coordinator
Dean of Studies Mathematik (Mathematics)

### Module offered by
Institute of Mathematics

### ECTS
3

### Method of grading
Only after succ. compl. of module(s)

### (not) successfully completed
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### Duration
1 semester

### Module level
undergraduate

### Content
Basic topics on teaching arithmetics in school, e.g. divisability theory, prime numbers, set theory.

### Intended learning outcomes
The student learns basic topics in the teaching of arithmetics and the related mathematical backgrounds and proofs. He/She is acquainted with the employment of new technologies for teaching arithmetic in school.

### Courses
Ü (no information on SWS (weekly contact hours) and course language available)

### Method of assessment
web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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*LA Grundschulen Didactics in Mathematics (Primary School) (2009)*
### Module title

**Basics in School Geometry (virtual course)**

### Abbreviation

10-M-VHBGeo-092-m01

### Module coordinator

Dean of Studies Mathematik (Mathematics)

### Module offered by

Institute of Mathematics

### ECTS

3

### Method of grading

Only after succ. compl. of module(s)

### (not) successfully completed

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### Duration

1 semester

### Module level

undergraduate

### 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. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incorporated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successfully completed, the lecturer will put the registration for assessment into effect at the end of the course.

### Contents

Revision and consolidation of the fundamental topics in elementary geometry that are prerequisites for the subject-specific and didactic courses (in particular teaching degrees Grundschule, Hauptschule, Realschule) in geometry.

### Intended learning outcomes

The student has basic knowledge of school geometry, as required for the study of mathematics and its didactics. He/She is acquainted with the employment of new technologies for teaching geometry in school.

### Courses

(U) (no information on SWS (weekly contact hours) and course language available)

### Method of assessment

(web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)

### Allocation of places

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### Additional information

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<td>numerical grade</td>
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**Contents**

Independently researching and writing on a topic in mathematics or mathematics didactics selected in consultation with the supervisor.

**Intended learning outcomes**

The student is able to work independently on a given mathematical topic and apply the skills and methods obtained during his/her studies in the teaching degree programme. He/She can write down the result of his/her work in a suitable form, incorporating aspects of the didactics of mathematics.

**Courses** (type, number of weekly contact hours, language — if other than German)

no courses assigned

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Written thesis (approx. 250 to 300 hours total)
Language of assessment: German, exceptions in accordance with Section 29 Subsection 4 LPO I (examination regulations for teaching degree programmes)

**Allocation of places**

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**Additional information**

Additional information on module duration: 1 to 2 semesters.

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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