

Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject **Mathematics as a Master's with 1 major with the degree "Master of Science" (120 ECTS credits)**

Responsible: Faculty of Mathematics and Computer Science
Responsible: Institute of Mathematics

Examination regulations version: 2016
Examination regulations version: 2016

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

Information on assessment procedures: 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 a 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:

ASPO2015

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

13-Jan-2016 (2016-2)

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.

Every module will be described using the following form:

| | | | | | | | |
|--------------|---------------------------------------|--|--|----------------|-------------------|--|--------------|
| Abbreviation | Module title | | | | | | |
| | ECTS | | Duration | (in semesters) | Method of grading | | Module level |
| | Courses | | To be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y | | | | |
| | Method of assessment | | | | | | |
| | Only after successful completion of | | if applicable | | | | |
| | Other prerequisites | | if applicable | | | | |
| | Participants and allocation of places | | if applicable | | | | |
| | Additional information | | if applicable | | | | |
| | Referred to in LPO I | | if applicable (examination regulations for teaching-degree programmes) | | | | |

| Compulsory Electives (90 ECTS credits) | | | | | | | |
|--|------------------------------|--|----------|------------|-------------------|-----------------|------------------------|
| Subfield Mathematics (30 ECTS credits) | | | | | | | |
| 10-M=AAAN-161-mo1 | Applied Analysis | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | |
| 10-M=AAL-G-161-mo1 | Topics in Algebra | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | |
| 10-M=ADG-M-161-mo1 | Differential Geometry | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | |

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| 10-M=AFT-H-161-mo1 | Complex Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AGMS-161-mo1 | Geometric Structures | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AIST-161-mo1 | Industrial Statistics 1 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=ALTH-161-mo1 | Lie Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=ANG- G-161-m01 | Numeric of Large Systems of Equations | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AOP- T-161-m01 | Basics in Optimization | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=ARTH-161- m01 | Control Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=ASM- R-161-m01 | Stochastic Models of Risk Management | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=AST- P-161-m01 | Stochastical Processes | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=A- TOP-161-m01 | Topology | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AVS- M-161-m01 | Insurance Mathematics 1 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AZ- RA-161-m01 | Time Series Analysis 1 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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|----------------------|--|---|----------|------------|-------------------|-----------------|-------------|----------|
| 10-M=AZTH-161-mo1 | Number Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AGP-Cin-152-mo1 | Giovanni Prodi Lecture (Master) | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VA-NA-161-mo1 | Selected Topics in Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VAT-P-161-mo1 | Algebraic Topology | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=VFN- M-161-m01 | Selected Topics in Financial Mathematics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VGDS-161- m01 | Groups and their Representations | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=V- GEM-161-m01 | Geometrical Mechanics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VIST-161- m01 | Industrial Statistics 2 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=V- KAR-161-mo1 | Field Arithmetics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VN- PE-161-mo1 | Numeric of Partial Differential Equations | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VOP- T-161-mo1 | Selected Topics in Optimization | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=V- STA-161-mo1 | Statistical Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=VVS- M-161-m01 | Insurance Mathematics 2 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VZ- RA-161-m01 | Time Series Analysis 2 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=V- DIM-161-m01 | Discrete Mathematics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VD- SY-161-m01 | Dynamical Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=V- GEO-161-mo1 | Aspects of Geometry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=V- KOM-161-mo1 | Mathematical Continuum Mechanics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VMB- V-161-mo1 | Mathematical Imaging | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VMPPH-161- mo1 | Selected Topics in Mathematical Physics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=V- TRT-161-m01 | Selected Topics in Control Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VI- PR-161-m01 | Inverse Problems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VMT- H-161-m01 | Module Theory | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=V- NAN-161-m01 | Non-linear Analysis | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=VOST-161-mo1 | Optimal Control | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VV-SY-161-mo1 | Networked Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + Ü (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VK-GE-161-mo1 | Complex Geometry | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VPD-P-161-mo1 | Partial Differential Equations of Mathematical Physics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=V- PRG-161-m01 | Pseudo Riemannian and Riemannian Geometry | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=AF- AN-161-m01 | Functional Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VAD- G-161-m01 | Applied Differential Geometry | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VG- PSin-152-m01 | Giovanni Prodi Lecture Selected Topics (Master) | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |

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| 10-M=VG-PAin-152-m01 | Giovanni Prodi Lecture Advanced Topics (Master) | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=VGPMIn-152-m01 | Giovanni Prodi Lecture Modern Topics (Master) | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus | | | | | | |
| 10-M=MP1-161-m01 | Analysis and Geometry of Classical Systems | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English creditable for bonus | | | | | | |
| 10-M=MP2-161-m01 | Algebra and Dynamics of Quantum Systems | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English creditable for bonus | | | | | | |

| Subfield Research in Groups and Seminars (10 ECTS credits) | | | | | | | | |
|--|--|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-M=GAL- G-161-m01 | Research in Groups - Algebra | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=G- DIM-161-m01 | Research in Groups - Discrete Mathematics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GD- SC-161-m01 | Research in Groups - Dynamical Systems and Control Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=G- COA-161-m01 | Research in Groups - Complex Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GGM- T-161-m01 | Research in Groups - Geometry and Topology | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=GM-CX-161-m01 | Research in Groups - Mathematics in Context | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GM-SC-161-m01 | Research in Groups - Mathematics in the Sciences | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=G-MAI-161-m01 | Research in Groups - Measure and Integral | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GN-MA-161-m01 | Research in Groups - Numerical Mathematics and Applied Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GROC-161-m01 | Research in Groups - Robotics, Optimization and Control Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=GT- SA-161-m01 | Research in Groups - Time Series Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=G- STA-161-m01 | Research in Groups - Statistics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GNTH-161- m01 | Research in Groups - Number Theory | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GC- QS-161-m01 | Research in Groups - Control Theory of Quantum Mechanical Systems | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GD- GE-161-m01 | Research in Groups - Differential Geometry | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=GDF- Q-161-m01 | Research in Groups - Deformation Quantization | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GN- LA-161-m01 | Research in Groups - Non-linear Analysis | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=GO- PA-161-m01 | Research in Groups - Operator Algebras | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SAD- G-161-m01 | Seminar in Applied Differential Geometry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SAL- G-161-m01 | Seminar in Algebra | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=SD- SC-161-m01 | Seminar in Dynamical Systems and Control | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=S- COA-161-m01 | Seminar in Complex Analysis | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=S- FIM-161-m01 | Seminar in Financial and Insurance Mathematics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=S- GTO-161-m01 | Seminar in Geometry and Topology | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SGP- Cin-152-m01 | Giovanni Prodi Seminar (Master) | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=SID- C-161-m01 | Interdisciplinary Seminar | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SM- SC-161-m01 | Seminar Mathematics in the Sciences | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SN- MA-161-m01 | Seminar in Numerical Mathematics and Applied Analysis | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=SOP- T-161-m01 | Seminar in Optimization | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 10-M=S- STA-161-m01 | Seminar in Statistics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 10-M=SN- LA-161-m01 | Seminar in Non-linear Analysis | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| Subfield Learning and Teaching | | | | | | | | |
| 10-M=EL- T1-161-m01 | Learning by Teaching 1 | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | T (0) | | | | | | |
| Method of assessment | Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units) | | | | | | | |
| 10-M=EL- T2-161-m01 | Learning by Teaching 2 | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | T (0) | | | | | | |
| | Method of assessment | Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units) | | | | | | |
| Subfield Optional Application Subject and/or Intership | | | | | | | | |
| Application Subject Biology | | | | | | | | |
| 07-MS2BI-152-m01 | Bioinformatics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English | | | | | | |
| 07-MS2BIF1-152- m01 | Bioinformatics F1 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | P (14) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English | | | | | | |

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| 07-MS2BIF2-152-mo1 | Bioinformatics F2 | | | | | | | |
| | ECTS | 15 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (29) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English | | | | | | |
| 07-MBI-B-152-mo1 | Bioinformatics B | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | V (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English | | | | | | |
| 07-MS3S-152-mo1 | Systems Biology | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English | | | | | | |
| 07-MS3SYF1-152-mo1 | Systems Biology F1 | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | P (14) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English | | | | | | |

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| 07-MS3SYF2-152-mo1 | Systems Biology F2 | | | | | | | |
| | ECTS | 15 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (29) + S (1) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English | | | | | | |
| 07-MS-B-152-mo1 | Systems Biology B | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | V (2) Module taught in: German and/or English | | | | | | |
| | Method of assessment | a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English | | | | | | |
| Application Subject Chemie | | | | | | | | |
| o8-PCM1a-161-mo1 | Laser Spectroscopy | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) Language of assessment: German and/or English | | | | | | |
| o8-PCM1b-161-mo1 | Advanced Physical Chemistry (Lab) | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (4) Module taught in: German or English | | | | | | |
| | Method of assessment | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations) Language of assessment: German and/or English | | | | | | |
| | Additional Information | Additional information on module duration: block taught lab course with approx. 20 working days. | | | | | | |

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|-----------------|--|--|----------|------------|-------------------|-----------------|-------------|----------|
| o8-PCM2-161-m01 | Statistical Mechanics and Reaction Dynamics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| o8-PCM3-161-m01 | Nanoscale Materials | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus | | | | | | |
| o8-PCM4-161-m01 | Ultrafast spectroscopy and quantum-control | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| | other prerequisites | Prior completion of modules o8-PCM1a and o8-PCM1b recommended. | | | | | | |
| o8-PCM5-161-m01 | Physical Chemistry of Supramolecular Assemblies | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |

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|------------------------|--|--|----------|------------|-------------------|------------------------------|-------------|----------|
| o8-PCM6-161-mo1 | Physical Chemistry (Advanced Lab) | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (4) Module taught in: German or English | | | | | | |
| | Method of assessment | presentation (approx. 20 minutes) Language of assessment: German and/or English | | | | | | |
| Additional Information | Additional information on module duration: block taught lab course with approx. 20 working days. | | | | | | | |
| o8-TCM2-161-mo1 | Basics and Applications of Quantum Chemistry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (2) | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| o8-TCM3-161-mo1 | Numerical Methods and Programming | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (2) | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| o8-TCM4-161-mo1 | Quantum Dynamics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (2) | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |

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| o8-TCM1-161-m01 | Selected Topics in Theoretical Chemistry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) + Ü (2) | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| o8-TCAP1-161-m01 | Theoretical Chemistry - Project course quantum chemistry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (5) | | | | | | |
| | Method of assessment | presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| o8-TCAP2-161-m01 | Theoretical Chemistry - Project course quantum dynamics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | graduate |
| | Courses | P (5) | | | | | | |
| | Method of assessment | presentation (approx. 30 minutes) Language of assessment: German and/or English | | | | | | |
| Application Subject Computer Science and Aerospace Computer Science | | | | | | | | |
| 10-I=SEM3-161-m01 | Seminar 1 - Current Topics in Computer Science | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | S (2) | | | | | | |
| | Method of assessment | term paper (10 to 15 pages) and presentation (30 to 45 minutes) with subsequent discussion on a topic from the field of computer science Language of assessment: German and/or English | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS, ES, LR, HCI*, GE. | | | | | | | |

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| 10-I=APR-161-m01 | Advanced Programming | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,LR, HCI, ES,GE | | | | | | |
| 10-I=AA-152-m01 | Advanced Automation | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes) creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,LR,GE | | | | | | |
| Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | | |
| 10-I=AGIS-161-m01 | Algorithms for Geographic Information Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IS,HCI | | | | | | |

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|------------------|---------------------------------|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=AG-161-m01 | Computational Geometry | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,HCI,GE | | | | | | |
| 10-I=APA-161-m01 | Approximation Algorithms | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,GE | | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | |
| 10-I=AUT-161-m01 | Automata Theory | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IT, ES, HCI, GE | | | | | | |

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| 10-I=AVS-161-m01 | Avionics Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): ES,LR | | | | | | |
| 10-HCI=M-MUI-161-m01 | Multimodal User Interfaces | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | presentation of project results (approx. 40 minutes) Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI,GE. | | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | |
| 10-I=BER-161-m01 | Computability Theory | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IT,IS,GE | | | | | | |
| 07-BI-161-m01 | Bioinformatics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | | | | | | | |

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|-------------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=CB-161-m01 | Compiler Construction | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,GE | | | | | | |
| 10-I=DDB-161-m01 | Deductive Databases | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IT,IS | | | | | | |
| 10-I=EL-161-m01 | E-Learning | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE | | | | | | |
| 10-MCS=H- CI-161-m01 | Introduction into Human-Computer Interaction | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | presentation of project results (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus | | | | | | |

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|------------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=ES-161-m01 | Embedded Systems | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,ES,LR,GE | | | | | | | |
| 10-I=PA-161-m01 | Analysis and Design of Programs | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,ES,GE | | | | | | | |
| 10-I=IR-161-m01 | Information Retrieval | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,HCI,GE | | | | | | | |

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|----------------------|------------------------------------|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-HCI=3DUI-161-mo1 | 3D User Interfaces | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | presentation of project results (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI,GE. | | | | | | |
| Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | | |
| 10-I=KT2-161-mo1 | Computational Complexity II | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, ES | | | | | | |
| 10-I=KI1-161-mo1 | Artificial Intelligence 1 | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI | | | | | | |
| 10-I=KI2-161-mo1 | Artificial Intelligence 2 | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI,GE | | | | | | |

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|------------------------|--|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=LVS-161-m01 | Performance Evaluation of Distributed Systems | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,GE | | | | | | | |
| 10-I=ML-161-m01 | Mathematical Logic | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,ES | | | | | | | |
| 10-I=MI-161-m01 | Medical Informatics | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE | | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=PEB-161-m01 | Performance Engineering & Benchmarking of Computer Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES,HCI,GE | | | | | | |
| 10-I=RAM-161-m01 | Computer Arithmetic | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,ES | | | | | | |
| 10-I=RO1-152-m01 | Robotics 1 | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 90 minutes) creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IS,ES,LR,HCI | | | | | | |
| Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | | |
| 10-I=RO2-152-m01 | Robotics 2 | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 90 minutes) creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT, ES, LR | | | | | | |
| Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=ST-161-m01 | Discrete Event Simulation | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,GE | | | | | | |
| 10-HCI=RIS-161-m01 | Real-Time Interactive Systems | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | | | | | | | |
| 10-I=SAR-161-m01 | Software Architecture | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES | | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | |
| 10-HCI=M-LUI-161-m01 | Machine Learning (for User Interfaces) | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | presentation of project results (approx. 40 minutes) Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI,GE. | | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | |

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|----------------------|--------------------------------------|--|----------|------------|-------------------|-----------------|-------------|----------|
| 10-I=VG-161-m01 | Visualization of Graphs | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,HCI,GE | | | | | | |
| Referred to in LPO I | § 22 II Nr. 3 b) | | | | | | | |
| 10-I=AKA-161-m01 | Selected Topics in Algorithms | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT | | | | | | |
| 10-I=AKT-161-m01 | Selected Topics in Theory | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + Ü (2) | | | | | | |
| | Method of assessment | written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus | | | | | | |
| | Additional Information | Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT | | | | | | |

| Application Subject Physik | | | | | | | |
|----------------------------|---|--|----------|------------|-------------------|-----------------|------------------------|
| 11-BSV-161-m01 | Image and Signal Processing in Physics | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level graduate |
| | Courses | V (2) + Ü (2) Module taught in: German or English | | | | | |
| | Method of assessment | <p>a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes).</p> <p>If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.</p> <p>Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester</p> | | | | | |
| 11-QUI-161-m01 | Quantum Information Technology | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | |
| | Method of assessment | <p>a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes).</p> <p>If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.</p> <p>Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester</p> | | | | | |

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|----------------|--------------------------------------|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-PMM-161-m01 | Physics of Advanced Materials | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-SPI-161-m01 | Spintronics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-FK2-161-m01 | Solid State Physics 2 | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-FKS-161-mo1 | Solid State Spectroscopy | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes) If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-MAG-161-mo1 | Magnetism | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-HLPH-161-mo1 | Semiconductor Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-HNS-161-m01 | Optical Properties of Semiconductor Nanostructures | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-QTH-161-m01 | Quantum Transport | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-ASM-161-m01 | Methods of Observational Astronomy | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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|----------------|--------------------------------------|---|----------|------------|-------------------|-----------------|-------------|----------|
| 11-TPE-161-m01 | Experimental Particle Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-ASP-161-m01 | Introduction to Space Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-MAS-161-m01 | Multi-wavelength Astronomy | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|---------------|
| 11-QM2-161-m01 | Quantum Mechanics II | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-RTT-161-m01 | Theory of Relativity | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-QVTP-161-m01 | Many Body Quantum Theory | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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|----------------|--|---|----------|------------|-------------------|-----------------|-------------|----------|
| 11-PKS-161-m01 | Physics of Complex Systems | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + R (2) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 11-QIC-161-m01 | Quantum Information and Quantum Computing | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| | Modules successfully completed | 11-QM2 or 11-TFK | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-TFK-161-m01 | Theoretical Solid State Physics | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-TFK2-161-m01 | Theoretical Solid State Physics 2 | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-FTFK-161-m01 | Field Theory in Solid State Physics | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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|-----------------|--|---|----------|------------|-------------------|-----------------|-------------|----------|
| 11-TOPO-161-m01 | Topological Order | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-TFP-161-m01 | Topology in Solid State Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| 11-TSL-161-m01 | Theory of Superconductivity | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-CMS-161-m01 | Computational Materials Science (DFT) | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-KFT-161-m01 | Conformal Field Theory | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-KFT2-161-m01 | Conformal Field Theory 2 | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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|----------------------|---|--|----------|------------|-------------------|-----------------|-------------|----------|
| 11-MSF-161-mo1 | Magnetism and Spin Fluids | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-TQP-161-mo1 | Topological Quantum Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-CRP-161-mo1 | Renormalization Group and Critical Phenomena | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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| 11-BWW-161-m01 | Bosonisation and Interactions in One Dimension | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-EIT-161-m01 | Gauge Theories | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-GGD-161-m01 | Introduction to Gauge/Gravity Duality | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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| 11-EFQ-161-m01 | Introduction to Fractional Quantisation | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-TEF-161-m01 | Topological Effects in Electronic Systems | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |
| 11-FTAS-161-m01 | Field Theoretical Aspects of Solid State Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | | |

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| 11-AKM-161-m01 | Cosmology | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 11-AST-161-m01 | Theoretical Astrophysics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (2) + R (2) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 11-APL-161-m01 | High Energy Astrophysics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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| 11-RQFT-161-m01 | Relativistic Quantum Field Theory | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| 11-QFT2-161-m01 | Quantum Field Theory II | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| 11-TEP-161-m01 | Theoretical Elementary Particle Physics | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (4) + R (2) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |

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|------------------------|--|---|----------|------------|-------------------|-----------------|-------------|----------|
| 11-ATTP-161-m01 | Selected Topics of Theoretical Elementary Particle Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| 11-BSM-161-m01 | Models Beyond the Standard Model of Elementary Particle Physics | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | V (3) + R (1) Module taught in: German or English | | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester | | | | | | |
| Internship | | | | | | | | |
| 10-M=E- PRK-161-m01 | Internship Mathematics | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | P (0) | | | | | | |
| | Method of assessment | a) placement report (15 to 30 pages) or b) talk (30 to 60 minutes) | | | | | | |
| | other prerequisites | In advance, please consult with a lecturer who agrees to be your supervisor. | | | | | | |

| Thesis (30 ECTS credits) | | | | | | | | |
|--------------------------|----------------------------------|---|----------|------------|-------------------|-----------------|-------------|----------|
| 10-M=MAAR-161-m01 | Master Thesis Mathematics | | | | | | | |
| | ECTS | 30 | Duration | 1 semester | Method of grading | numerical grade | Modul level | graduate |
| | Courses | No courses assigned to module | | | | | | |
| | Method of assessment | Master's thesis (750 to 900 hours total) Registration and assignment of topic in consultation with supervisor. Language of assessment: German or English | | | | | | |
| | other prerequisites | The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisite for the assignment of the topic. | | | | | | |
| Additional Information | Time to complete: 6 months | | | | | | | |