# Annex SFB

# Studienfachbeschreibung (subject description, SFB) for the subject
## Computer Science as a Bachelor's with 1 major
## with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Faculty of Mathematics and Computer Science

Responsible: Institute of Computer Science

Examination regulations version: 2019

Examination regulations version: 2019

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| 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)):

**26-Jul-2018 (2018-55)**

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 Courses (125 ECTS credits) | | | | | | | |
|---|---|---|---|---|---|---|---|

| Computer Science (85 ECTS credits) | | | | | | | |
|---|---|---|---|---|---|---|---|

| 10-I-GdP-172-m01 | **Fundamentals of Programming** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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). creditable for bonus | | | | | |
| | Referred to in LPO I | | § 49 I Nr. 1 b) § 69 I Nr. 1 b) | | | | | |

| 10-I-ADS-152-m01 | **Algorithms and data structures** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | 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). creditable for bonus | | | | | |
| | Referred to in LPO I | | § 49 I Nr. 1 a) § 69 I Nr. 1 a) | | | | | |

| 10-I-ST-152-m01 | **Software Technology** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | 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). creditable for bonus | | | | | |
| | Referred to in LPO I | | § 49 I Nr. 1 b) § 69 I Nr. 1 b) | | | | | |

| 10-I-PP-191-m01 | **Practical Course in Programming** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ECTS | 10 | Duration | | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (6) | | | | | |
| | Method of assessment | | practical examination (programming exercises, approx. 240 hours) and written examination (approx. 60 to 120 minutes) <br> 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). | | | | | |
| | other prerequisites | | Intended learning outcomes of the following module are required: 10-I-GdP. It is therefore strongly recommended to complete this before. | | | | | |
| | Referred to in LPO I | | § 49 I Nr. 1 c) <br> § 69 I Nr. 1 d) | | | | | |
| 10-I-SWP-152-m01 | **Practical course in software** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (6) | | | | | |
| | Method of assessment | | practical project (Completion of a larger software project in groups (approx. 300 hours per person) and final presentation (approx. 10 minutes per group) | | | | | |
| | Modules successfully completed | | 10-I-PP, 10-I-ST | | | | | |
| | other prerequisites | | In addition, the knowledge and skills acquired in module 10-I-ADS are required. Prior attendance of this module is therefore highly recommended. | | | | | |
| | Referred to in LPO I | | § 69 I Nr. 1 d) | | | | | |
| 10-I-RAL-152-m01 | **Digital computer systems** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes). <br> 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). <br> creditable for bonus | | | | | |
| 10-I-RIÜ-191-m01 | **Computer Networks and Information Transmission** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes). <br> 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). <br> creditable for bonus | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b), § 69 I Nr. 1 c) | | | | | |

| 10-I-DB-152-m01 | **Databases** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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 | | | | | |
| | Referred to in LPO I | § 49 I Nr. 1 b) § 69 I Nr. 1 b) | | | | | |
| 10-I-MCS-191-m01 | **Introduction into Human-Computer Interaction** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (3) + Ü (1) | | | | | |
| | Method of assessment | written examination (approx. 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 | | | | | |
| 10-I-HWP-152-m01 | **Practical course in hardware** | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | P (6) | | | | | |
| | Method of assessment | portfolio: completion of approx. 3 to 10 project assignments (approx. 250 hours total) and presentation of results (approx. 10 minutes per project) | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | |

**Theoretical Informatics (10 ECTS credits)**

| 10-I-TIV-152-m01 | **Theoretical Informatics** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (4) | | | | | |
| | 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). | | | | | |
| | Referred to in LPO I | § 49 I Nr. 1 a) § 69 I Nr. 1 a) | | | | | |

| 10-I-TIT-191-m01 | **Tutorial Theoretical Informatics** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | Ü (2) | | | | | |
| | Method of assessment | a) exercises (consisting in completion of approx. 11 home work exercise sheets, presentation of own solutions in the exercise groups as well as approx. 5 short assessments written in the exercise group) or<br>b) written examination (approx. 180 to 240 minutes)<br>Die Prüfungsart ist vom Prüfling festzulegen | | | | | |

## Mathematics (30 ECTS credits)

| 10-I-LOG-152-m01 | **Logic for informatics** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | § 22 II Nr. 3 b) | | | | | |
| 10-M-INF1-152-m01 | **Mathematics 1 for students in Computer Science** | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (4) + Ü (2)<br>Module taught in: Ü: German or English | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes, usually chosen) or<br>b) oral examination of one candidate each (15 to 30 minutes) or<br>c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-M-INF2-152-m01 | **Mathematics 2 for students in Computer Science** | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (4) + Ü (2)<br>Module taught in: Ü: German or English | | | | | |
| | Method of assessment | a) written examination (approx. 90 to 180 minutes, usually chosen) or<br>b) oral examination of one candidate each (15 to 30 minutes) or<br>c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

| 10-I-AGT-152-m01 | **Algorithmic Graph Theory** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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 | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |

## Compulsory Electives (25 ECTS credits)

## Computer Science (15 ECTS credits)

| 10-I-SEC-191-m01 | **IT Security** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2) Module taught in: German and/or English | | | | |
| | 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 | | | | |

| 10-I=ICG-152-m01 | **Interactive Computer Graphics** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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): HCI | | | | |

| 10-I-WBS-152-m01 | **Knowledge-based Systems** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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 | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |
| 10-I-DM-152-m01 | **Data Mining** | | | | | | |
| | 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 | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |
| 10-I-APR-172-m01 | **Advanced Programming** | | | | | | |
| | 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 | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |

| 10-I-KT-191-m01 | **Computational Complexity** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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).<br>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).<br>Language of assessment: German and/or English<br>Assessment offered: In the semester in which the course is offered and in the subsequent semester<br>creditable for bonus | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |
| 10-I-KD-191-m01 | **Cryptography and Data Security** | | | | | | |
| | 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).<br>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).<br>Language of assessment: German and/or English<br>Assessment offered: In the semester in which the course is offered and in the subsequent semester<br>creditable for bonus | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |
| 10-I-3D-152-m01 | **3D Point Cloud Processing** | | | | | | |
| | 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).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | |

| 10-I-BS-191-m01 | **Operating Systems** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2)<br>Module taught in: English | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | |
| 10-I-RAK-152-m01 | **Computer Architecture** | | | | | | |
| | 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).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b)<br>§ 69 I Nr. 1 c): Rechnerarchitektur | | | | |
| 10-I-SKS-191-m01 | **Control Principles of Modern Communication Systems** | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | |
| 10-I-GI-152-m01 | **Selected Basics of Computer Science** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | |
| | Method of assessment | | written examination (approx. 60 to 120 minutes).<br>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).<br>Language of assessment: German and/or English<br>creditable for bonus | | | | |

| subsidiary subject | | | | | | |
|---|---|---|---|---|---|---|
| **Students must select one of the minors offered and must achieve the required number of ECTS credits in this minor.** | | | | | | |

| **Mathematics** | | | | | | |
|---|---|---|---|---|---|---|
| 10-M-DI-Maf-152-m01 | **Introduction to Discrete Mathematics for students of other subjects** | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus | | | |
| 10-M-NUM1af-152-m01 | **Numerical Mathematics 1 for students of other subjects** | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus | | | |
| 10-M-STO-1af-152-m01 | **Stochastics 1 for students of other subjects** | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus | | | |
| 10-M-ZT-Haf-152-m01 | **Introduction Into Number Theory for students of other subjects** | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus | | | |

| 10-M-DGLaf-152-m01 | **Ordinary Differential Equations for students of other subjects** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ECTS | 10 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | | a) written examination (approx. 90 to 180 minutes, usually chosen) or<br>b) oral examination of one candidate each (15 to 30 minutes) or<br>c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 10-M-OR-Saf-152-m01 | **Operations Research for students of other subjects** | | | | | | | |
| | ECTS | 10 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | | a) written examination (approx. 90 to 180 minutes, usually chosen) or<br>b) oral examination of one candidate each (15 to 30 minutes) or<br>c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)<br>Language of assessment: German and/or English<br>Assessment offered: In the semester in which the course is offered and in the subsequent semester<br>creditable for bonus | | | | | |

## Physics

| 11-EFNF-152-m01 | **Introduction to Physics for Students of other Disciplines** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ECTS | 7 | Duration | | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | | V (4) + V (3) | | | | | |
| | Method of assessment | | | written examination (60 to 120 minutes) | | | | | |
| | Additional Information | | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |
| 11-PFNF-152-m01 | **Laboratory Course Physics for Students of other Disciplines** | | | | | | | |
| | ECTS | 3 | Duration | | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | | P (4) | | | | | |
| | Method of assessment | | | a) practical assignment with oral test (approx. 15 minutes, during experiments) and b) written examination (approx. 90 minutes).<br>Each experiment comprises preparation, performance and evaluation. Test as well as performance of experiments can each be repeated once. | | | | | |
| | Participants and allocation of places | | | Only as part of pool of general transferable skills (ASQ): 10 places (lottery) | | | | | |
| | Additional Information | | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |

## Economics

| 12-NW-EBWL-152-mo1 | **Introduction to Business Administration - Minor** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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 minutes) | | | | |
| | Participants and allocation of places | | 200 places (lottery) | | | | |

| 12-NW-EV-WL-152-mo1 | **Introduction to Economics - Minor** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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 minutes) | | | | |
| | Participants and allocation of places | | max. 200 places. Modules 12-NW-EBWL and 12-NW-EVWL are not open for students of the following subjects: Wirtschaftswissenschaft (Business Management and Economics) Bachelor's (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) Bachelor's (BSc with 180 ECTS credits) and Wirtschaftsmathematik (Mathematics for Economics) Bachelor's (BSc with 180 ECTS credits). | | | | |

| 12-ExtUR-G-152-mo1 | **Financial Accounting** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes) | | | | |
| | Participants and allocation of places | | 840 places. (1) No restrictions with regard to available places for Bachelor's students of Wirtschaftswissenschaft (Business Management and Economics) (BSc with 180 ECTS credits), Wirtschaftsmathematik (Mathematics for Economics) (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) as well as Bachelor's students with the minor Wirtschaftswissenschaft (Business Management and Economics) (60 ECTS credits). (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (2) and the number of applications exceeds the number of available places, places will be allocated according to the following quotas: a) Quota 1 (50 % of places): total number of ECTS credits already achieved in the respective degree subject; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. b) Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. c) Quota 3 (25 % of places): lottery. | | | | |

| 12-IntUR-G-152-m01 | **Managerial Accounting** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes) | | | | |
| | Participants and allocation of places | | 840 places.<br>(1) No restrictions with regard to available places for Bachelor's students of Wirtschaftswissenschaft (Business Management and Economics) (BSc with 180 ECTS credits), Wirtschaftsmathematik (Mathematics for Economics) (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) as well as Bachelor's students with the minor Wirtschaftswissenschaft (Business Management and Economics) (60 ECTS credits). (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (2) and the number of applications exceeds the number of available places, places will be allocated according to the following quotas: a) Quota 1 (50 % of places): total number of ECTS credits already achieved in the respective degree subject; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. b) Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. c) Quota 3 (25 % of places): lottery. (4) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | |
| 12-BPL-G-152-m01 | **Supply, Production and Operations Management. An Introduction** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes) | | | | |
| | Participants and allocation of places | | 620 places.<br>(1) No restrictions with regard to available places for Bachelor's students of Wirtschaftswissenschaft (Business Management and Economics) (BSc with 180 ECTS credits), Wirtschaftsmathematik (Mathematics for Economics) (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) as well as Bachelor's students with the minor Wirtschaftswissenschaft (Business Management and Economics) (60 ECTS credits). (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (2) and the number of applications exceeds the number of available places, places will be allocated according to the following quotas: a) Quota 1 (50 % of places): total number of ECTS credits already achieved in the respective degree subject; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. b) Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. c) Quota 3 (25 % of places): lottery. (4) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | |

| 12-I&F-G-152-m01 | **Investment and Finance. An Introduction** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes) | | | | |
| | Participants and allocation of places | | 620 places. (1) No restrictions with regard to available places for Bachelor's students of Wirtschaftswissenschaft (Business Management and Economics) (BSc with 180 ECTS credits), Wirtschaftsmathematik (Mathematics for Economics) (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) as well as Bachelor's students with the minor Wirtschaftswissenschaft (Business Management and Economics) (60 ECTS credits). (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (2) and the number of applications exceeds the number of available places, places will be allocated according to the following quotas: a) Quota 1 (50 % of places): total number of ECTS credits already achieved in the respective degree subject; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. b) Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. c) Quota 3 (25 % of places): lottery. (4) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | |
| 12-Ewiinf-G-152-m01 | **Introduction to Business Informatics** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2) | | | | |
| | Method of assessment | | a) written examination (approx. 60 minutes) or b) written examination consisting entirely or partly of multiple choice questions (approx. 60 minutes) Language of assessment: German and/or English creditable for bonus | | | | |
| | Participants and allocation of places | | 840 places. (1) No restrictions with regard to available places for Bachelor's students of Wirtschaftswissenschaft (Business Management and Economics) (BSc with 180 ECTS credits), Wirtschaftsmathematik (Mathematics for Economics) (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) as well as Bachelor's students with the minor Wirtschaftswissenschaft (Business Management and Economics) (60 ECTS credits). (2) Additional places will be allocated to students of other subjects. (3) When places are allocated in accordance with (2) and the number of applications exceeds the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (4) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (5) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | |

| 12-GP-G-152-m01 | **Integrated Business Processes** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (2) + Ü (2) | | | | | |
| | Method of assessment | a) written examination (approx. 60 minutes) or <br> b) term paper (approx. 15 pages) or <br> c) term paper (approx. 10 to 15 pages) and presentation (approx. 10 minutes); (weighted 2:1) <br> creditable for bonus | | | | | |
| | Participants and allocation of places | 15 places. (1) The number of places is not restricted for students of the Bachelor's degree subject Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits). (2) Additional places will be allocated to students of other subjects provided there is enough capacity. These additional places will be allocated by lot among all applicants irrespective of their subjects. (3) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (4) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | | |
| 12-FRBE-F-152-m01 | **Forward and Reverse Business Engineering** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (2) + Ü (2) | | | | | |
| | Method of assessment | a) written examination (approx. 60 minutes) or <br> b) term paper (approx. 15 pages) or <br> c) term paper (approx. 10 to 15 pages) and presentation (approx. 10 minutes); (weighted 2:1) <br> creditable for bonus | | | | | |
| | Participants and allocation of places | 50 places. Should the number of applications exceed the number of available places, places will be allocated as follows: (1) Bachelor's students of Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) will be given preferential consideration. (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group. (4) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (5) A waiting list will be maintained and places re-allocated by lot as they become available. | | | | | |

## Linguistics

| 04-DtLABA-BM-SW-152-m01 | **Level One Module German Linguistics** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (2) + S (2) + T (1) | | | | | |
| | Method of assessment | written examination (approx. 75 minutes) | | | | | |
| | Referred to in LPO I | § 43 I Nr. 2 b) <br> § 63 I Nr. 2 b) | | | | | |
| 04-DtLABA-AM-SW1-152-m01 | **Level Two Module Grammatical Structures of German** | | | | | | |
| | ECTS | 5 | Duration | | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | V (1) + S (2) + T (1) | | | | | |
| | Method of assessment | written examination (approx. 75 minutes) | | | | | |
| | Referred to in LPO I | § 43 I Nr. 2 b) <br> § 63 I Nr. 2 b) | | | | | |

| Biology | | | | | | | |
|---|---|---|---|---|---|---|---|
| 07-1A1TI-152-m01 | **Evolution and the Animal Kingdom** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (3) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes)<br>creditable for bonus | | | | |
| | other prerequisites | | Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment. | | | | |
| | Referred to in LPO I | | § 41 I Nr. 1 (4 ECTS credits) and § 41 I Nr. 4 (1 ECTS credits)<br>§ 61 I Nr. 1 (4 ECTS credits) and § 61 I Nr. 4 (1 ECTS credits) | | | | |
| 07-2A2GEN-V-152-m01 | **Genetics, Neurobiology, Behaviour** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) | | | | |
| | Method of assessment | | written examination (approx. 60 to 90 minutes)<br>creditable for bonus | | | | |
| | other prerequisites | | Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment. | | | | |
| | Referred to in LPO I | | § 61 I Nr. 2 (2 ECTS credits)<br>§ 61 I Nr. 3 (1 ECTS credits)<br>§ 61 I Nr. 4 (1 ECTS credits) | | | | |
| 07-M-BST-152-m01 | **Mathematical Biology and Biostatistics** | | | | | | |
| | ECTS | 4 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2) | | | | |
| | Method of assessment | | written examination (approx. 60 minutes)<br>creditable for bonus | | | | |
| 07-3A3OE-KO-152-m01 | **Plant and Animal Ecology** | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2) | | | | |
| | Method of assessment | | written examination (approx. 90 minutes)<br>creditable for bonus | | | | |
| | Referred to in LPO I | | § 61 I Nr. 4 | | | | |
| 07-3A3GEM-T-152-m01 | **Genes, Molecules, Technologies** | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) | | | | |
| | Method of assessment | | written examination (approx. 90 minutes)<br>creditable for bonus | | | | |

## Law

| 02-J1-171-m01 | **Introduction to the German Legal System** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) | | | | | |
| | Method of assessment | | written examination (approx. 120 minutes) | | | | | |
| | Participants and allocation of places | | max. 80 places. Students applying after not having successfully completed assessment in the past two semesters will be given preferential consideration. The remaining places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available. Places on all courses of the module with a restricted number of places will be allocated in the same procedure. | | | | | |
| 02-G&Hre-G-161-m01 | **Commercial and Business Law for Economists** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 120 minutes)<br>Assessment offered: Usually once a year, summer semester | | | | | |
| | Participants and allocation of places | | There are no restrictions with regard to available places for students of Rechtswisschaft (Law) as well as Bachelor's students with the minor Privatrecht (Private Law). A total of 20 places will be allocated to students of other subjects. 10 of these will be allocated to students of the Master's degree programme Economics. Should the number of available places exceed the number of applications, the remaining places may be allocated to students of other subjects. Should there be more than 10 applications, the remaining places will be allocated as follows: Students applying after not having successfully completed assessment in past years will be given preferential consideration. The remaining places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available. | | | | | |

## Geography

| 04-Geo-FER-NE-152-m01 | **Introduction to Geographical Remote Sensing** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 45 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | | § 66 I Nr. 2 | | | | | |
| 04-Geo-FER-NA-152-m01 | **Applications of Remote Sensing in Geography** | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + T (2)<br>Module taught in: German and/or English | | | | | |
| | Method of assessment | | written examination (approx. 45 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |

## Medicine

| 03-M-MT-152-m01 | **Practical Course in medical terminology** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | unknown |
| | Courses | | P (o) | | | | |
| | Method of assessment | | written examination (approx. 60 to 90 minutes) | | | | |

| 03-M-IM-152-m01 | **Internal Medicine** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | unknown |
| | Courses | | V (o) | | | | |
| | Method of assessment | | oral examination (one candidate each: approx. 15 minutes, or groups of up to 3 candidates: approx. 10 minutes per candidate) Assessment will usually have reference to one of the sub-specialities of internal medicine, e. g. cardiology, pulmonology, nephrology, endocrinology, oncology, gastroenterology, rheumatology, infectious disease. | | | | |

## Key Skills Area (20 ECTS credits)

## General Key Skills (5 ECTS credits)
In addition to the modules listed below, students may also take modules offered by JMU as part of the pool of general transferable skills (ASQ).

## General Key Skills (subject-specific)

| 10-I-TUT1-152-m01 | **Tutor activity 1** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 2 | Duration | | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | T (2) | | | | |
| | Method of assessment | | Wrap-up report on tutoring activities (5 to 10 pages) | | | | |
| | Referred to in LPO I | | § 22 II Nr. 2 f) § 22 II Nr. 3 f) | | | | |

| 10-I-TUT2-152-m01 | **Tutor activity 2** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 2 | Duration | | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | T (2) | | | | |
| | Method of assessment | | Wrap-up report on tutoring activities (5 to 10 pages) | | | | |
| | Referred to in LPO I | | § 22 II Nr. 2 f) § 22 II Nr. 3 f) | | | | |

| 10-I-TUT3-152-m01 | **Tutor activity 3** | | | | | | |
|---|---|---|---|---|---|---|---|
| | ECTS | 2 | Duration | | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | T (2) | | | | |
| | Method of assessment | | Wrap-up report on tutoring activities (5 to 10 pages) | | | | |

| Subject-specific Key Skills (15 ECTS credits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10-I-SEM1-152-m01 | **Seminar - Selected Topics in Computer Science 1** | | | | | | | |
| | ECTS | 5 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | S (2) | | | | | | |
| | Method of assessment | | written elaboration (approx. 10 to 15 pages) and presentation (approx. 30 to 45 minutes) with subsequent discussion on a topic from the field of computer science<br>Language of assessment: German and/or English | | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | | | |
| 10-I-SEM2-152-m01 | **Seminar - Selected Topics in Computer Science 2** | | | | | | | |
| | ECTS | 5 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | S (2) | | | | | | |
| | Method of assessment | | Wrap-up report on tutoring activities (5 to 10 pages)<br>Language of assessment: German and/or English | | | | | | |
| 10-I-PV-152-m01 | **Project Presentation** | | | | | | | |
| | ECTS | 5 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | S (5) | | | | | | |
| | Method of assessment | | presentation of a project developed by the candidate analogous to a presentation for laypersons with a knowledge of computer science at a trade fair as well as discussion (approx. 10 to 15 minutes total)<br>Language of assessment: German and/or English | | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 3 b) | | | | | | |
| **Thesis (10 ECTS credits)** | | | | | | | | |
| 10-I-BA-152-m01 | **Bachelor's Thesis Informatics** | | | | | | | |
| | ECTS | 10 | Duration | | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | No courses assigned to module | | | | | | |
| | Method of assessment | | Bachelor's thesis (approx. 50 to 100 pages)<br>Language of assessment: German and/or English | | | | | | |
| | Additional Information | | Time to complete: 10 weeks. | | | | | | |