

**Examination Regulations  
for the Master's degree program Chemistry  
of the Department of Chemistry and Chemical Biology  
at TU Dortmund University  
from 10 December 2021**

Based on Section 2 (4) in conjunction with Section 64 (1) of the Higher Education Act of the State of North Rhine-Westphalia (*Hochschulgesetz NRW*, HG) of 16 September 2014 (GV.NRW. p.547), as last amended by Article 1 of the Act Amending the Higher Education Act for the Arts and Amending Other Provisions in Higher Education of 25 November 2021 (GV.NRW. p.1209a), TU Dortmund University has issued the following regulations:

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## I. General

### Section 1

#### Scope of validity of the Master's examination regulations

- (1) These Master's examination regulations apply to the English-language Master's degree program "Chemistry" at the Department of Chemistry and Chemical Biology of TU Dortmund University. They regulate the structures of the Master's degree program in accordance with Section 64 (1) of the Higher Education Act of the State of North Rhine-Westphalia (*Hochschulgesetz NRW*, HG).
- (2) The module descriptions in the module handbook describe the individual study elements, the course content and the competences to be acquired. They are not part of these examination regulations. They are decided by the responsible Department Council and have to be reported to the Rectorate.

### Section 2

#### Study objectives and purpose of the examinations

- (1) Considering the requirements and changes in the professional world and the interdisciplinary references, the teaching and studies in this degree program provide students with the necessary specialized knowledge, skills and methods in such a way that they are enabled to carry out independent scientific work, to critically classify and responsibly apply scientific findings and methods. As an English-language degree program, it prepares students particularly well for a professional orientation in an international environment.
- (2) The Master's examination constitutes a further professional qualification of the studies in the Master's degree program Chemistry. The Master's examination is intended to determine whether the candidate has an overview of the interrelationships of the subject and is able to independently apply scientific methods and findings in professional practice in research and development tasks in a problem-oriented manner.

### Section 3

#### Master's degree

Based on the successful completion of the Master's examination in this degree program, TU Dortmund University, through the Department of Chemistry and Chemical Biology, awards the academic degree "Master of Science" ("M. Sc.").

### Section 4

#### Admission requirements

- (1) The admission requirement for the Master's degree program in Chemistry is
  - a) a Bachelor's degree in Chemistry or Chemical Biology from TU Dortmund University or
  - b) another comparable degree in a comparable degree program of at least three years (six semesters) at a state or state-recognized institution of higher education within the scope of the Basic Law or at an institution of higher education outside the scope of the Basic Law, provided that the Examination Board has determined that there are no significant differences from the degree and degree program referred to in subsection 1 lit. a.
- (2) The Examination Board is responsible for examining the admission requirements. The criterion for determining whether or not there are substantial differences is a comparison of the

content, scope and requirements of the achieved degree and degree program with the degree and degree program pursuant to subsection 1 lit. a. Depending on this assessment, the Examination Board may grant admission without or with stipulations for the successful completion of missing examination achievements or refuse admission. Stipulations can be imposed for a maximum of 30 credit points and must be successfully completed by the start of the Master's thesis at the latest. Section 11 (1) applies accordingly to the examinations to be taken as part of the stipulations.

- (3) If the academic degree was acquired abroad, the equivalence agreements approved by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (*Kultusministerkonferenz*) and the German Rectors' Conference (*Hochschulrektorenkonferenz*), agreements within the framework of university partnerships and the recommendations of the Central Office for Foreign Education (*Zentralstelle für ausländisches Bildungswesen, ZAB*) must be taken into account when examining the materiality of differences. In case of ambiguity, the Examination Board may invite the applicants to an interview on the subject content of the degree to determine the equivalence of the degree. The interview is conducted by two university teachers from the Department of Chemistry and Chemical Biology.
- (4) In addition to the above-mentioned requirements according to subsection 1, applicants must meet the following criteria:
  - a) As an overall grade, at least the grade "satisfactory" (3.2) or, in the case of a foreign degree, a grade at least equivalent to the grade "satisfactory" (3.2) in the respective national grading system was achieved in the prerequisite degree according to subsection 1.
  - b) The applicant must have proven knowledge of the English language of at least level B2 of the Common European Framework of Reference. These are also considered to be proven
    - by the certificate of the general or subject-restricted university entrance qualification from the area of application of the Basic Law,
    - by an internationally recognized language certificate (for example TOEFL; IELTS) or a comparable certificate or
    - by attending an English-speaking school for at least one year, or
    - in the case of applicants whose native language is English or who have obtained a degree in accordance with subsection 1 in an English-language degree program.
- (5) If an applicant does not yet hold the certificate of the Bachelor's degree, the Examination Board may admit this applicant to the chosen Master's degree program if the applicant provides evidence that he or she has successfully passed all examinations of the Bachelor's degree program.

## **Section 5**

### **Credit point system**

- (1) The degree program's structure is based on a credit point system that is compatible with the European Credit Transfer System (ECTS).
- (2) Each module is assigned a number of credit points according to its study effort. One credit point within the meaning of these examination regulations corresponds to one ECTS point and is awarded for a performance that requires a workload of approximately 30 hours. As a rule, 30 credit points are to be awarded per semester.
- (3) Credit points are awarded based on successfully and fully completed modules.

## **Section 6**

### **Standard program duration, study structure and scope of studies**

- (1) The standard program duration, including the completion of the Master's thesis, is four semesters (two years).
- (2) The degree program is divided into modules, each of which extends over a maximum of two consecutive semesters. Modules are self-contained units of study that are rounded off in terms of content and time and usually comprise at least 4 credit points.
- (3) The Master's degree program comprises a total of 120 LP, which correspond to approx. 3,600 student working hours and are divided into compulsory and compulsory elective courses.
- (4) The language of instruction is generally English and is regulated in the module descriptions of the module handbook.
- (5) The degree program can be started in the summer or winter semester.
- (6) The structure of the Master's degree program as well as the modules, including the credit points to be acquired and the type of examination (module examination or partial assessments), are shown in the appendix to these examination regulations.

## **Section 7**

### **Laboratory courses**

- (1) The laboratory courses comprise a total of 46 credit points in the Master's degree program. Four compulsory elective laboratory courses with a scope of 9 credit points each as well as a research laboratory course in the major subject with a scope of 10 credit points have to be completed.
- (2) In the laboratory courses, manual skills are practiced and knowledge of methods is imparted. This serves to gain experience by working on practical tasks and thus promote insight into factual interrelationships. In addition, they are intended to train the skills required for the proper design and execution of one's own experiments as well as careful observation during the self-performed experiments.
- (3) The prerequisite for admission to all laboratory courses is the presentation of proof of expertise in accordance with Section 11 of the Chemicals Prohibition Ordinance. If this is not available on the basis of the preliminary training, it must be proven by the end of the second semester at the latest.
- (4) The prerequisite for participation in the research laboratory course in the major subject is the previous successful participation in four compulsory elective laboratory courses and the successful participation in at least two compulsory elective lectures in the major subject. In addition, the final examinations of at least four further compulsory elective lectures must have been taken.
- (5) Further details are governed by the guidelines of the department for laboratory courses.

## **Section 8**

### **Admission to courses and laboratory courses with limited number of participants**

- (1) The courses of the Master's degree program Chemistry may be limited in the number of participants for the reasons stated in Section 59 (2) sentence 1 HG. For the laboratory courses, the number of participants is limited for organizational and safety reasons.
- (2) The determination of the limitation of the number of participants and a maximum number of participants for the respective courses is made by the Department Council of the Department of Chemistry and Chemical Biology and is announced in an appropriate manner.

- (3) If the number of applicants exceeds the admission capacity, the Dean or a lecturer appointed by him or her, with the participation of the Department's Commission for Teaching and Studies, shall regulate admission at the request of the respective lecturer. Applicants are to be considered in the following order:
1. Students who are dependent on attending the course at that time within the study plan of their chosen degree program.  
 On the one hand, these are students for whom the course is intended according to the module descriptions of the module handbook and the study plan in the subject semester in which the course is offered; on the other hand, students who are in the last semester of their studies according to the standard program duration or in a later semester and need the course in order to complete their studies within the standard program duration or in a timely manner.
  2. Students who, according to their degree program, are not dependent on attending the course at this point in time within the framework of their chosen degree program, or students who, according to Section 52 (2) HG, are admitted as cross-registered students and who, according to their study plan, are dependent on attending the course at this point of time within the framework of their chosen degree program
  3. Students who are admitted to the respective course as cross-registered students according to Section 52 (1) HG.
  4. Other students of TU Dortmund University if they meet the requirements for participation in the course.
- (4) Where a selection is required within a group, candidates shall be considered in the following order:
1. Students with a long-term or permanent disability, chronic illness or with care requirements (care of children living in the household who are mainly to be looked after, care of the spouse, the registered partner or a relative in the direct line or a first-degree relative by birth or marriage, insofar as the latter is in need of care).
  2. Students for whom it is mandatory to repeat a course in the according module.
  3. After the remaining criteria have been exhausted, the decision is made by lot.
- (5) The existence of the conditions related to the criteria according to subsection 4 no.1, no.2 and no.3 shall be asserted to the Dean by the applicants themselves during the application procedure and within the specified and published deadlines.
- (6) The Department of Chemistry and Chemical Biology shall ensure, within the limits of the available resources, that the students referred to in subsection 3 no. 1 as a rule suffer no loss of time, or at most a loss of time of one semester, as a result of the limitation of the number of participants.

## **Section 9**

### **Examinations**

- (1) Modules are usually completed with only one examination. In particularly justified cases, several modules can also be completed with a joint examination. The module is completed by a graded module examination. Exceptionally, a module can also be successfully completed by partial assessments. Partial assessments are rendered within the framework of individual courses. Modules of the first two semesters can also be completed with an ungraded module examination or ungraded partial assessments. The respective types of examination (module examination or partial assessments) can be found in the appendix to these examination regulations.

- (2) Examinations are carried out during the course of study, in particular in the form of written examinations, oral examinations, electronic examinations or examinations in electronic communication, certified practical examinations, written papers or presentations based on written papers. The respective responsible examiners may determine other suitable forms of examination with the approval of the Examination Board.
- (3) The type, form and scope of the module examinations and partial assessments are specified in the module descriptions of the module handbook or are announced by the examiner by posting at the latest two weeks after the start of the course. Upon application via the Examination Board, it is possible in justified cases to deviate for a limited period of time from the form of delivery originally stipulated in the module descriptions of the module handbook.
- (4) Admission to the individual module examinations requires that the examinations designated as prerequisites in the module descriptions of the module handbook have been successfully completed.
- (5) Access to the courses of a module can be made dependent on certain prerequisites, in particular the successful completion of other modules. The individual access requirements of the modules result from the module descriptions of the module handbook.
- (6) The processing time for a written exam is a minimum of 2 hours and a maximum of 4 hours. The written examinations are conducted under supervision and are not open to the public. The respective permitted aids will be announced by the examiner by posting at the beginning of the registration period. The result of the written exam should be announced after 6 weeks at the latest, whereby the requirements of data protection are to be observed.
- (7) Examinations can be conducted in whole or in part using the answer-choice method. Particularly when using this method, care must be taken to ensure that the examination tasks are based on the content and required knowledge taught in the modules or the corresponding courses and enable reliable examination results. They are to be prepared jointly by two examiners. When setting up examination questions, it must be determined which answers are recognized as correct.
- (8) Oral examinations must be taken by at least one examiner in the presence of at least one expert observer (Section 13), who must be heard before the grade is determined. In addition, written or oral examinations with which a degree program is completed and repeat examinations for which no compensation option is provided in the event of a definite final failure must always be evaluated by two examiners.
- (9) If an oral examination is taken in front of one examiner, the examiner must hear the observer before determining the grade in accordance with Section 18 (1). If an oral examination is taken in front of two examiners, each examiner shall determine an individual grade for the oral examination performance in accordance with Section 18 (1). The grades for the oral examination performance shall be determined from the arithmetic mean of the two individual grades in accordance with Section 18 (7).
- (10) The duration of oral examinations is a minimum of 20 minutes and a maximum of 45 minutes per candidate. Oral group examinations take place with a maximum of 2 students. The main subjects and results of the oral examination are to be recorded in minutes/a protocol. The result of the examination shall be announced to the student following the oral examination. Students who wish to take the same oral examination in a later examination period shall be admitted as listeners if spatial conditions allow it, unless the student who is to be examined objects. Admission does not extend to the discussion and the announcement of the examination results. In the event of influencing or disrupting the examination, these persons may be excluded as listeners by the examiner.
- (11) Written coursework may consist of a summarizing report or several individual reports.

- (12) In modules that conclude with a module examination, additional coursework may be required in the individual courses. These can be in particular: presentations, homework, certified practical experiments, successful participation in exercises, oral or written performance reviews, lectures or protocols. Coursework can either be graded or assessed as "passed" or "failed". The prerequisite for participation in the module examination is the successful completion of all coursework required in this module. Participation in these coursework activities can also be indicated as voluntary.
- (13) The demands of coursework are clearly below the requirements of a module examination or partial assessments in terms of form and content. If the form in which an item of coursework is to be completed for a module is not defined in the module descriptions of the module handbook, it will be announced by the lecturer no later than two weeks after the start of the course.
- (14) The obligation of regular attendance may be provided for courses whose learning objective cannot be achieved without the active participation of the students. When regulating compulsory attendance, the constitutional requirement of proportionality has to be observed. A decision on compulsory attendance is made either on the basis of a vote on the matter by the Study Advisory Council or on the basis of a two-thirds majority of the Department Council. The compulsory attendance is to be indicated in the module description in the module handbook. The exact form of compulsory attendance is announced to the students in an appropriate form at the beginning of the course.
- (15) Both written and oral examinations may be conducted in English or German by mutual agreement between the examiner and the candidate.

## **Section 10**

### **Disadvantage compensation**

- (1) If a student provides a medical certificate to make credible that he or she is unable to take an examination in whole or in part in the intended form, duration or time limit due to a long-term or permanent disability or chronic illness, the chairperson of the Examination Board shall determine in which other form, duration or time limit the examination is to be taken. This also applies to the acquisition of a participation requirement. Furthermore, deviations may be provided with regard to the use of aids or assistants as well as the number of and requirements for the repetition of examination performances. In the case of persons with a disability or chronic illness, this should apply to all examinations to be taken during the degree program, unless a change in the illness or disability is to be expected. In case of doubt, the person or office responsible for questions concerning the interests of disabled students will be involved (e.g. the Department of Disability and Studies within the Center for Higher Education of TU Dortmund University, *DoBuS/zhb*).
- (2) Disadvantage compensation is granted on a case-by-case basis upon application to the Examination Board and must be submitted to the Central Examinations Office.

## **Section 11**

### **Maternity protection**

The statutory maternity protection periods as well as the corresponding provisions of the Maternity Protection Act (*Mutterschutzgesetz*, MSchG) apply, cf. Section 64 (2) no.5 and (2a) North Rhine-Westphalia Higher Education Act (HG NRW).

## **Section 12**

### **Deadlines and dates**

- (1) Registration for each exam is required no later than two weeks before the start of the respective exam. The registration period must be at least two weeks. A deregistration without giving reasons is possible up to one week before the start of the respective examination in the case of oral examinations and up to one day before the start of the respective examination in the case of written examinations. The student is then deemed as not registered for the examination.
- (2) The final examination for a module shall be held in the semester in which the last course belonging to this module takes place. A second examination date should normally be offered in the following semester at the latest. The second examination date particularly serves to enable a candidate who has not passed the examination on the first date to take part in the examination of the second date. The examination dates are confirmed by the Examination Board and announced in an appropriate form at least four weeks before the end of the lecture period.
- (3) For modules whose courses are held with essentially the same subject content and in annual rotation (e.g. compulsory modules), the respective associated examinations according to subsection 2 are at the same time repetition dates for candidates who have not passed or not attended the examinations for this module at the first two dates.
- (4) For modules whose courses are not held with the same subject content in an annual cycle (e.g. compulsory elective modules), a second repetition date is offered. There is no entitlement to further repetition dates.
- (5) Examination procedures take into account the periods of absence due to the care of children living in the household who are mainly to be cared for, due to the care of the spouse, the registered partner or a relative in the direct line or first-degree relative by law, insofar as the latter is in need of care.

## **Section 13**

### **Repetition of examinations, passing the Master's examination, final failing of an examination**

- (1) The module examinations and individual partial assessments can be repeated twice if they have not been passed or are deemed as failed. If a partial assessment is not passed, only this must be repeated. For reasons of comparability and fairness, repeated examinations must be conducted in the same form as the first attempt at the examination. Examinations that have been passed cannot be repeated.
- (2) Final failure of compulsory elective modules may be compensated by other successfully completed compulsory elective modules.
- (3) If the second repetition of an examination is in written form, the student must undergo a supplementary oral examination before the grade "insufficient" (5.0) is determined. Section 10 (1) shall not apply. Section 9 (7) and (9) and Section 18 shall apply accordingly to the oral supplementary examination. The grade "sufficient" (4.0) or "insufficient" (5.0) shall be determined on the basis of the supplementary oral examination. The oral supplementary examination must take place within 12 weeks of the announcement of the examination result. The overall result is to be recorded in a protocol and announced to the student after the oral supplementary examination. In total, a maximum of three oral supplementary examinations can



be taken in the Master's program in Chemistry. If the date set by the examination board for a supplementary oral examination is missed without good reason, the examination is deemed to have been definitively failed. The oral supplementary examination is excluded if the grade "insufficient" (5.0) was determined due to an attempt to deceive, a failure to attend or a withdrawal without valid reasons according to Section 15.

- (4) In deviation from subsection 1, the Master's thesis can only be repeated as a whole and then only once with a new topic and different examiners. In the case of a repetition, returning the topic in accordance with Section 19 (6) is only permitted if the candidate did not make use of this option when preparing the unsuccessful Master's thesis.
- (5) Examinations that have not been successfully completed shall be repeated no later than in the second semester following the failed examination. In the case of modules to which Section 12 (4) applies, the module must be repeated in its entirety after the last opportunity for repetition pursuant to Section 12 (4) has expired. The number of permitted repetitions according to subsection 1 is not increased by this.
- (6) The Master's examination is passed if all 120 credit points from the course-related examinations and for the Master's thesis have been acquired.
- (7) The Master's examination is definitively failed if
  - a) the Master's thesis is again failed after repetition or is considered as failed or
  - b) one of the compulsory modules listed in the appendix has been definitively failed, or
  - c) a candidate can no longer acquire the required minimum number of credit points.
- (8) If the Master's examination has been definitively failed or if an examination is deemed as definitively failed, the chairperson of the Examination Board shall issue a written notification to the candidate. The notification shall be accompanied by instructions on how to appeal. Upon application, the candidate will be issued a certificate of the successfully passed examinations; it shall be added that this certificate is not valid for presentation at another university.

## **Section 14**

### **Examination Board**

- (1) For the organization of the examinations and the tasks assigned by these examination regulations, the Department of Chemistry and Chemical Biology forms an Examination Board. The Examination Board consists of seven members, namely the Dean as the chairperson, three other full-time university lecturers respectively teachers of the Department of Chemistry and Chemical Biology, including the substitute of the chairperson, one member from the group of academic staff respectively research assistant and two students of the Department of Chemistry and Chemical Biology who are enrolled for this Master's degree program or another degree program of the Department of Chemistry and Chemical Biology of TU Dortmund University with a subject-related degree that is at least equivalent. The substitute chairperson and the other non-student members of the Examination Board are elected separately according to groups by the Department Council for two years, the student members for one year. Substitutes are elected by the Department Council for the members of the Examination Board with the exception of the chairperson and his or her substitute. A re-election is permitted. The composition of the Examination Board is announced by the Dean. If the election of the Examination Board or individual members is declared invalid after taking office, this does not affect the legal validity of the resolutions and official acts previously adopted.
- (2) For the duration of their term of office, the Dean may, in agreement with the Department Council, transfer the chairing of this Examination Board to the Vice Dean for Academic Affairs or to another professor respectively university teacher of the Department.

- (3) The Examination Board ensures that the examinations are conducted properly and that the provisions of the examination regulations are observed. It is particularly responsible for deciding on appeals against decisions made in the examination procedure. In addition, the Examination Board reports regularly, at least once a year, to the Department Council on the development of examinations and degree program durations. It makes suggestions for the reform of the examination regulations and the curricula. The Examination Board may delegate the following tasks to the chairperson: questions of recognition, urgent decisions, appeals/complaints, appointment of examiners. Decisions on appeals and the duty to report to the Department Council cannot be delegated to the chairperson of the Examination Board.
- (4) The Examination Board has a quorum if, in addition to the chairperson or the substitute chairperson and two other members from the group of university teachers, at least two other members with voting rights are present. It decides by simple majority. In the event of a tie, the chairperson has the casting vote. The student members of the Examination Board do not participate in pedagogical-scientific decisions, especially in the assessment, recognition of achievements, the setting of examination tasks and the appointment of examiners and assessors.
- (5) The members of the Examination Board have the right to attend the taking of the examinations.
- (6) The meetings of the Examination Board are not public. The members of the Examination Board, their substitutes, the examiners and the observers are subject to official secrecy. If they are not in public service, they must be sworn to secrecy by the chairperson of the Examination Board.
- (7) The Examination Board uses the administrative assistance of the Central Examinations Office of TU Dortmund University in the performance of its duties.

## **Section 15**

### **Examiners and observers**

- (1) The Examination Board appoints the examiners and the observers in accordance with the legal requirements. It may delegate the appointment to the chairperson of the Examination Board. Examiners may be university teachers or other persons authorized to examine within the meaning of Section 65 (1) HG who have independently taught the subject in question at TU Dortmund University during the period of study preceding the examination. As observer may only be appointed who has acquired at least the qualification to be determined by the examination or a comparable qualification.
- (2) The examiners are independent in their examination activities.
- (3) Candidates can propose examiners for the Master's thesis. The suggestions should be taken into consideration as far as possible. However, these suggestions do not constitute a legal claim.
- (4) The candidate should be informed of the names of the examiners in good time, at least two weeks before the date of the respective examination.

## **Section 16**

### **Recognition of examination achievements, placement in higher program semesters**

For the recognition of examination achievements and the classification into higher program semesters, the currently valid Recognition Regulations of TU Dortmund University for examination achievements in all Bachelor's and Master's degree programs apply.

## Section 17

### Default, withdrawal, deception and breach of order

- (1) An examination is assessed as "insufficient" (5.0) or "failed" if the candidate either fails to appear at an examination date without good reason, he or she withdraws from the examination after it has begun without good reason or if a written examination performance is not completed within the specified processing time.
- (2) The reasons asserted for the withdrawal or failure to attend must be notified in writing without delay to the Examination Board and must be made credible. In the case of illness of the candidate or of a child who is predominantly to be cared for by the candidate, the submission of a medical certificate in German is required. In the case of illness of the candidate, the medical certificate must prove the inability to take the examination. In the case of a subsequent withdrawal from an examination that has been taken, the medical certificate must show that the impairment of performance at the examination was not apparent to the student for health reasons and that there was no reasonable cause to doubt the student's ability to perform. If the Examination Board does not recognize the reasons for the withdrawal or failure, the candidate will be informed of this decision in writing.
- (3) If an examination performance is influenced by deception or cheating (e.g. use of unauthorized aids, adoption of text passages without reproduction as a quotation, copying, etc.), this examination is deemed as "insufficient" (5.0) or "failed". This also applies to attempts at deception. If during an examination an attempt at deception or deception within the meaning of sentence 1 is detected by the examination supervisor, the supervisor shall record the attempt at deception or the deception in writing. The decision as to whether there has been an attempt at deception or an act of deception and whether the examination is therefore deemed as "insufficient" (5.0) or "failed" is made by the respective examiner. A candidate who disrupts the orderly conduct of the examination may, as a rule after a warning, be excluded from continuing the examination by the respective examiner or the supervisor. In this case, the examination in question shall be deemed as "insufficient" (5.0) or "failed". The respective reasons for the decision are to be recorded. In serious cases of deception or disruption, the Examination Board may exclude the candidate from taking further examinations.
- (4) In the case of module examinations or partial assessments, the Examination Board may demand a written declaration from the candidate that he or she has written the work independently - in the case of group work, an appropriately marked part of the work - and has not used any sources or aids other than those stated and has marked verbatim and analogous quotations. Section 19 (10) remains unaffected.
- (5) The candidate can demand within a period of 14 days that decisions according to subsection 3 are reviewed by the Examination Board. Incriminating decisions are to be communicated to the students in writing without delay, reasons are to be given and instructions on the right to appeal are to be included. Prior to the decision, the students must be given the opportunity and right to a hearing.

## II. The Master's examination

### Section 18

#### Admission to Master's examination

- (1) Upon enrollment in the degree program or admission as a cross-registered student pursuant to Section 52 (2) HG, a student is considered admitted to the examinations of the Master's degree program Chemistry, unless enrollment or admission is to be denied pursuant to subsection 2.
- (2) Enrollment or admission shall be denied if
  - a) the candidate has definitively failed an examination required by these examination regulations in the Master's degree program Chemistry at TU Dortmund University or in another degree program that has a considerable proximity to this degree program in terms of content, or
  - b) if the candidate, after having passed the examination in one of the above-mentioned courses of study, has not yet received a final and legally binding decision on the definite final failure due to a subsequent challenge of the examination notice.

### Section 19

#### Scope of the Master's examination

- (1) The Master's examination consists of 90 credit points for examinations in the modules of this degree program, 25 credit points for the successfully completed Master's thesis and 5 credit points for the final disputation.
- (2) Examination subjects in the sense of these regulations are
  - the major subject (at least 95 credit points),
  - Further Studies in Chemistry or Natural Sciences (at least 17 credit points),
  - Supplementary Non-Natural Sciences Studies (a maximum of 8 credit points).
- (3) The candidate chooses a major subject at the beginning of the degree program. The following can be chosen as a major subject:
  1. Molecules and Materials: Syntheses, Structures, Functions
  2. Experiment and Theory: Spectroscopy, Computational Chemistry, Industrial Processes
- (4) In the major subject, at least the following modules related to the chosen major must be completed: 7 compulsory elective lectures (4 credit points each), 3 compulsory advanced elective laboratory courses (9 credit points each), a research laboratory course (10 credit points) as well as the Master's thesis (25 credit points) and the associated disputation (5 credit points). Of these, the Master's thesis, the disputation, the research laboratory course, 2 elective laboratory courses as well as 4 elective lectures belong to one of the following subjects: Inorganic Chemistry, Organic Chemistry, Physical Chemistry or Industrial Chemistry. The other modules are to be completed in the other subject of the major subject.
- (5) In the examination subject "Further Studies in Chemistry or Natural sciences", the candidate must complete the following, depending on the chosen major subject:

1. In case of "Molecules and Materials": At least one compulsory elective lecture (4 credit points) in Physical Chemistry, at least one compulsory elective lecture (4 credit points) in Industrial Chemistry, and one compulsory advanced elective laboratory course (9 credit points) in Physical or Industrial Chemistry.
  2. In case of "Experiment and Theory": At least one compulsory elective lecture (4 credit points) in Inorganic Chemistry, at least one compulsory elective lecture (4 credit points) in Organic Chemistry, and one compulsory advanced elective laboratory course (9 credit points) in Inorganic or Organic Chemistry.
- (6) The assignment of the modules to the two major subjects as well as to the subjects of the Master's thesis can be found in the module handbook. The assignment of credit points to the modules as well as the assignment of the courses to the modules is regulated by the study plan in the appendix to these examination regulations.
- (7) Students who have not successfully completed the compulsory elective module "Introduction to Industrial Chemistry - Lecture" in the Bachelor's degree program Chemistry or Chemical Biology are required to complete this module in the Master's degree program in Chemistry to the extent of 4 credit points.

## Section 20

### Evaluation of course-related examination performances, acquisition of credit points, calculation of grades

- (1) The grades for the individual examination performances and the Master's thesis are determined by the respective examiners. The following grades are to be used for the assessment:

1 = <i>very good</i>	= an excellent performance,
2 = <i>good</i>	= a performance significantly above average requirements,
3 = <i>satisfactory</i>	= a performance that meets average requirements,
4 = <i>sufficient</i>	= a performance which, despite its deficits, still meets the requirements,
5 = <i>insufficient</i>	= a performance that no longer meets the requirements due to substantial deficits.

By decreasing or increasing individual grades by 0.3, intermediate values can be formed for differentiated assessment; the grades 0.7 or 4.3 or 4.7 and 5.3 are excluded, however.

- (2) In consultation with the Examination Board, examination performances which are not included in the overall grade can be evaluated either according to the grading scale as described in subsection 1 or according to the following simplified scale:

<i>passed</i>	= a performance that at least meets the requirements
<i>failed</i>	= a performance that no longer meets the requirements due to substantial deficits.

- (3) The number of credit points assigned to the respective module is acquired if the module has been evaluated with at least "sufficient" (4.0) or "passed".
- (4) A written exam which was conducted exclusively by means of the answer-choice method is considered as passed if
- a) 50 % of the total number of points to be obtained has been achieved or
  - b) the achieved score does not fall below the average performance of the candidates who took part in the examination by more than 20 %.

- (5) If the candidate has achieved the minimum score according to subsection 4 and has thus passed the examination, the grade shall be as follows:

1 = *very good*, if he or she has at least 75 %,

2 = *good*, if she or he has at least 50% but less than 75%,

3 = *satisfactory*, if he or she has at least 25% but less than 50%,

4 = *sufficient*, if he or she has no or less than 25 %

of the points to be achieved above the minimum score.

- (6) If a written examination is only partly carried out in the answer-choice method, the tasks in the answer-choice method will be assessed in accordance with subsections 4 and 5. The remaining tasks will be assessed according to the usual procedure for them. The grade of the examination performance is determined from both assessments, taking into account the proportions of the total number of points to be achieved in each case. Subsection 7 applies accordingly.

- (7) If a module is completed by a module examination, this grade is also the module grade. In the case of partial assessments, the module grade is calculated from the arithmetic mean of the non-rounded grades of the partial assessments taken as part of the module, weighted with the corresponding credit points. At the request of the student, up to three additional voluntary semester-accompanying coursework performances can be included when determining the module grade if the module examination or the partial assessments have been passed with at least sufficient grades. The module grade is then calculated to at least 75% from the grade of the module examination or from the arithmetic mean of the partial assessments and up to 25% from the arithmetic mean of the grades of the up to three voluntary semester-accompanying study performances. The module grades are then in words with an average value of

up to 1.5 = *very good*,

1.6 to 2.5 = *good*,

2.6 to 3.5 = *satisfactory*,

3.6 to 4.0 = *sufficient*,

above 4.1 = *insufficient*.

When calculating the module grades, only the first decimal place after the decimal point is considered; all other decimal places are deleted without rounding.

- (8) If more compulsory elective modules are completed than required according to the corresponding overview in the appendix, the modules with the worst grades are not to be included in the calculation of the subject grades as well as the final cumulative grade for the Master's examination, upon considerations of the minimum requirements specified by these examination regulations. In the case of equal grades, the modules taken later shall not be counted. A different consideration is possible upon request of the candidate.
- (9) The subject grades in the examination subjects (Section 17 (2)) are calculated from the arithmetic mean of the grades of the associated modules, each weighted by the number of credit points assigned to them. Subsection 7 applies accordingly.
- (10) The final cumulative grade for the Master's examination is calculated from the arithmetic mean of the non-rounded grades of all graded modules (including the Master's thesis and the disputation) formed in accordance with subsection 7, whereby the individual grades are weighted with the respective number of credit points belonging to this module. Paragraph 7 applies accordingly.

- (11) The overall grade is also shown in the form of a degree according to the European Credit Transfer System (ECTS). In addition to this, ECTS grades can be indicated for all graded examinations. A corresponding resolution of the Examination Board is required for this. The grades according to ECTS are shown as follows:
- A = usually the top approximately 10% of successful students;
  - B = usually the next approximately 25% of successful students;
  - C = usually the next approximately 30% of successful students;
  - D = usually the next approximately 25% of successful students;
  - E = usually the next approximately 10% of successful students.
- (12) The formation of the ECTS grades is basically done by comparing the cohorts of the last six semesters. If this group is smaller than 50 persons, the reference group is to be determined from the last 10 semesters. In principle, the current semester is not to be taken into account in the formation of the ECTS grades. As long as no statistical data are available for the calculation of a relative evaluation, no ECTS grades are indicated. For reasons of legally secure awarding, a decision of the Examination Board may waive the reporting of ECTS grades. Appropriate notes appear in the final document. The composition of the comparison group shall be differentiated according to the degree and the degree program. In addition, in objectively justified cases, a different composition of the comparison group can take place. This requires a corresponding decision by the Examination Board.

## **Section 21**

### **Admission to and preparation of the Master's thesis**

- (1) The Master's thesis, together with the finalizing disputation, is part of the scientific education in this degree program. The Master's thesis should demonstrate that the candidate is able to structure an experimental or theoretical task of appropriate scope from the field of chemistry within a given time frame, work on it independently from a scientific point of view, and present the obtained scientific findings in an appropriate manner in writing.
- (2) The Master's thesis can be supervised by any examiner (Section 13) who fulfills the requirements of Section 65 (1) HG and who works full-time at the Department of Chemistry and Chemical Biology at TU Dortmund University, with the exception of the teaching areas Didactics of Chemistry and Didactics of Biology. The Master's thesis can also be supervised by any examiner (Section 13) who fulfills the requirements of Section 65 paragraph (1) HG and regularly conducts courses for this degree program and who, by decision of the Examination Board, is deemed as legally equal to the examiners named in sentence 1.
- (3) Prerequisite for admission to the Master's thesis is
  - the successful acquisition of 70 credit points, and
  - the successful completion of all laboratory courses.
- (4) Admission is granted by the Examination Board. It may only be refused if one of the admission requirements according to subsection 3 is not fulfilled. The topic of the Master's thesis should in principle be assigned to the candidate's major subject. In the latter case, the Examination Board shall decide after hearing the candidate and the supervisor. In case of a negative decision by the Examination Board, the candidate must be informed immediately in writing, the reasons for the decision must be stated and instructions on the right to appeal must be included.
- (5) The topic of the Master's thesis is issued at the request of the candidate via the chairperson of the Examination Board. Before the topic of the Master's thesis is issued, the candidate must fulfill the prerequisites according to subsection 3. Proof of fulfillment of these requirements must be attached to the application. The date of issue is to be put on records. At the

same time, the date for submission of the Master's thesis is set. The candidate may make suggestions in the application regarding the supervisor and the topic. If the candidate waives the right to make suggestions, the chairperson of the Examination Board will ensure that he or she receives a supervisor and a topic for the Master's thesis in good time.

- (6) By mutual agreement of the student and the examiners, the Master's thesis can be written in English or German.
- (7) The topic of the Master's thesis can only be returned once and only within the first four weeks of the processing period after the topic has been issued; the thesis is then considered as not to have been started.
- (8) The processing time for the Master's thesis is 6 months. It begins with the issue of the topic and ends with the submission date set by the Examination Board. The topic and the assignment must be such that the Master's thesis can be completed within this period. In individual cases, the Examination Board may, upon justified application, extend the processing time once by a maximum of 6 weeks if the reasons given for the extension are not the responsibility of the candidate. The request must be submitted to the Examination Board at least 2 weeks before the end of the processing period. In case of illness, the deadline for submission can be extended by a maximum of half of the processing time. A medical certificate must be submitted for this purpose. The extension corresponds to the period of illness. If the duration of the illness exceeds half of the processing time, the candidate will be given a new topic without recognition of an examination attempt.
- (9) As a rule, the length of the Master's thesis should not exceed 60 DIN A4 pages.
- (10) The Master's thesis must always be written independently as an individual work. However, this does not preclude that the topic of the Master's thesis can be worked on within a group. In this case, it must be ensured that the contribution of the individual to be evaluated as an examination performance is clearly distinguishable and assessable according to objective criteria and that it fulfills the requirements according to subsection 1. The number of pages specified in subsection 8 must reasonably exceed the requirements of an individual thesis.
- (11) When submitting the Master's thesis, the candidate affirms in lieu of an oath that he or she has written the thesis independently, has not used any sources or aids other than those indicated, and has identified verbatim and analogous quotations, indicating their sources. Unpublished contributions are also to be included in the list of sources. For the affidavit, a standardized form from the Central Examinations Office is to be used and, when submitting the Master's thesis, it is to be signed and included as an integral part of the Master's thesis or uploaded as one file together with the thesis in accordance with the digital submission procedure pursuant to Section 22 (1).

## **Section 22**

### **Submission and evaluation of the Master's thesis**

- (1) For the submission of the Master's thesis, the provisions of the Regulations for the Submission of Theses (Bachelor's/Master's) of TU Dortmund University apply in the currently valid version. If the uploading of individual theses or parts of theses is not suitable for technical reasons and/or if there is a contractual agreement with third parties that excludes the publication of theses or parts thereof, the previous analog procedure for the submission of theses according to subsection 2 shall apply by decision of the Examination Board.
- (2) In the analog procedure, the Master's thesis must be submitted in due time to the Central Examinations Office of TU Dortmund University in three hardback copies and additionally in an electronic version that can be used for a software product for plagiarism detection. The date of submission is to be recorded in writing. In the case of postal delivery, the date of the postmark is valid. If the Master's thesis is not submitted on time, it is assessed as "insufficient" (5.0).



- (3) The Master's thesis is to be assessed and evaluated by two examiners. The first examiner is usually the supervisor of the thesis (first assessor). The second examiner (second assessor) is determined by the chairperson of the Examination Board when the topic is issued. If compelling reasons require, the Examination Board may, in individual cases and in derogation of Section 13 (1), also admit university lecturers or university teachers from other universities as second examiners. At least one of the examiners must work full-time at the Department of Chemistry and Chemical Biology at TU Dortmund University.
- (4) The individual assessment is to be made in accordance with Section 18 (1) and justified in writing. The grade of the Master's thesis is formed from the arithmetic mean of the two individual evaluations, provided that their difference is not more than 2.0. If the difference is more than 2.0 or if only one examiner evaluates the Master's thesis with at least "sufficient" (4.0), the Examination Board shall appoint a third examiner for the evaluation of the Master's thesis. In this case, the grade of the Master's thesis is formed from the arithmetic mean of the two better grades. However, the Master's thesis can only be graded "sufficient" (4.0) or better if at least two grades are "sufficient" (4.0) or better. Section 18 (7) applies accordingly.
- (5) As a rule, the assessment of the Master's thesis must be communicated to the candidate no later than four weeks after the submission.

### **Section 23**

#### **Disputation**

- (1) The disputation should show that the candidate is able to orally present a project in context which he or she has carried out himself or herself, to give reasons for the chosen approach and to defend it within an extended professional framework.
- (2) The date of the disputation should not be later than 4 weeks after the deadline of the Master's thesis.
- (3) In the disputation, the candidate reports publicly to the department on the project carried out by him or her in the Master's thesis and the obtained results. The following must be present as the Examination Board:
  - the supervisor of the thesis as first examiner and chairperson of the Examination Board,
  - one further examiner; this may be the second examiner for the Master's thesis,
  - an expert observer appointed by the chairperson of the Examination Board in consultation with the examiners. The observer shall record the main points of the discussion in minutes.
- (4) The disputation usually lasts 45 minutes (a minimum of 30 and a maximum of 60 minutes), of which the report should not take more than 20 minutes. At least half of the scheduled total duration is to be reserved for the discussion of the presentation content. Section 9 (9) applies accordingly.
- (5) The supervisor of the Master's thesis chairs the discussion. She or he may allow questions on the content of the report and on the argumentation used in the report from all members of the audience. Questions from the examiners and observers have priority.
- (6) By mutual agreement with the student and the examiners, the disputation can be held in English or German.
- (7) The evaluation is subject to Section 9 (8) sentence 2 and sentence 3. The disputation can only be evaluated with "sufficient" (4.0) or better if at most one member of the Examination Board votes for "not sufficient" (5.0).

### **Section 24**

### **Transition to the doctoral degree program**

- (1) Candidates may transfer to the doctoral degree program of the Department of Chemistry and Chemical Biology upon application without a Master's degree. Prerequisite is the completion of the Bachelor's degree program with a grade of at least 1.5 as well as the acquisition of at least 60 credit points in the form of doctoral preparatory studies, which must also be completed with a grade of at least 1.5. The details of this are regulated by the doctoral regulations.
- (2) The candidate receives a certificate, which is not a Master's certificate, of the achievements in this degree program, which contains the note "Degree program terminated by admission to the doctoral degree program". This certificate shall bear the date of admission to the doctoral degree program. Upon application by the candidate, re-entry into this degree program is possible with recognition of the achievements made up to the time of admission to the doctoral degree program. Achievements made in the doctoral degree program can be credited towards the achievements still to be made for the successful completion of this degree program in accordance with Section 14, as long as they were completed with an examination and were not part of a successfully completed doctorate.

### **Section 25**

#### **Additional qualifications**

- (1) The candidate may take examination performances in modules other than those stipulated before passing or finally failing the examination. If the Master's examination has been passed and the student is still enrolled in the Master's degree program Chemistry, further examination performances can be taken that belong to modules of the semester in which the last examination performance for passing the Master's examination was taken. No credit points can be acquired with these examination performances.
- (2) Additional qualifications are not included in the determination of the final cumulative grade. The assessment of the examination results will be included in the Transcript of Records at the request of the student.

### **Section 26**

#### **Master's Certificate, documents for a change of university**

- (1) If the candidate has passed the Master's examination, a certificate will be issued to him or her after notification of the passing of the Master's examination to the Central Examinations Office, usually within 4 weeks. The overall grade of the Master's examination, including the ECTS grade according to Section 18 (11), the topic and the grade of the Master's thesis, the grade of the disputation, the subject grades of the examination subjects according to Section 17 (2) as well as the credit points acquired in the individual examination subjects are to be included in the certificate.
- (2) The Master's certificate indicates the candidate's major subject of their studies.
- (3) A Diploma Supplement is attached to the certificate. It describes in particular the essential contents of the degree program on which the degree is based, the study plan, the competences acquired with the degree and the awarding university. The Diploma Supplement is issued in German and English. Furthermore, an overview of the academic achievements (Transcript of Records) is attached to the certificate.
- (4) At the request of the candidate, additional achievements that are not included in the module and final cumulative grade are shown on the Transcript of Records. Beyond this, voluntary laboratory courses completed as part of the degree program, which have been approved on application via the Examination Board and which have a content-related and subject-related connection to the chosen degree program, can also be included.

- (5) The certificate must be signed by the chairperson of the Examination Board and bear the seal of the Department of Chemistry and Chemical Biology. It bears the date of the day on which the last examination was taken.
- (6) At the candidate's request, a certificate of the examination achievements already made (Transcript of Records) can also be issued before completion of the Master's examination, which contains a list of the successfully completed modules with the acquired credit points and examination achievements and the grades according to Section 18 (1).
- (7) The Master's certificate and the other certificates will also be issued in English at the request of the candidate and in consultation with the Examination Board.

## **Section 27**

### **Master's Diploma**

- (1) The candidate is issued a Master's Diploma in German and English with the date of the certificate. The Master's Diploma certifies the awarding of the academic degree in accordance with Section 3. The degree program of the graduate shall be indicated in the Master's Diploma.
- (2) The Master's Diploma is signed by the Dean of the Department of Chemistry and Chemical Biology and by the Chairperson of the Examination Board and bears the seal of the Department of Chemistry and Chemical Biology.

### III. Final provisions

#### Section 28

##### Invalidity of examination results and withdrawal of the Master's degree

- (1) If the candidate has cheated in an examination and this fact only becomes known after the certificate has been issued, the Examination Board may subsequently correct the grades for those examination performances in which the candidate cheated and declare the examination wholly or partially failed.
- (2) If the requirements for admission to an examination were not fulfilled without the candidate's intention to deceive and if this fact only becomes known after the certificate has been issued, this defect is remedied by the passing of the examination. If the candidate has intentionally obtained admission unlawfully, the Examination Board decides on the legal consequences in accordance with the Administrative Procedure Act NRW (*Verwaltungsverfahrensgesetz für das Land Nordrhein-Westfalen, VwVfG NRW*).
- (3) Before a decision is taken pursuant to subsections 1 and 2, the concerned person shall be given the opportunity to make their views known orally or in writing.
- (4) In the event of a decision in accordance with subsection 1 or subsection 2 sentence 2, the incorrect examination certificate shall be withdrawn and, if necessary, a new one issued. A decision in accordance with subsection 1 or subsection 2 sentence 2 is excluded after a period of five years after the certificate has been issued.
- (5) The Master's degree is revoked and the Master's Diploma is to be withdrawn if it is subsequently found that it was acquired by deception or if essential requirements for the awarding were erroneously considered to have been met. The Department Council of the Department of Chemistry and Chemical Biology decides on the revocation.

#### Section 29

##### Viewing of examination records

- (1) After the announcement of an examination result, a viewing of the examination documents will be granted. Copies or other reproductions true to the original may be made during the viewing. The use of copies and other reproductions of the examination is only permitted for the personal use with the purpose of the examination viewing. In particular, the publication, duplication, distribution and any kind of exploitation as well as the transfer to third parties is not permitted. In case of violations, considerable legal consequences are to be expected.
- (2) The time and place of the viewing are determined by the examiners and announced in a suitable form when the examination results are announced. Students are granted access to the results of other written examinations upon request. The application must be submitted to the chairperson of the Examination Board within one month.
- (3) The viewing of the examiners' assessments relating to the respective examinations and of the minutes of the oral examinations shall be granted to the candidate upon request. The request must be submitted to the chairperson of the Examination Board within three months of the announcement of the examination result. The chairperson of the Examination Board shall determine the place and time of viewing.

#### Section 30

##### Scope of application, entry into force and publication

- (1) These examination regulations apply to all students who have been enrolled in the Master's degree program Chemistry for the first time from the Winter semester 2021/2022 onwards.

- (2) Students who have already been enrolled in the Master's degree program *Chemie* before the Winter semester 2021/2022 can apply to the Examination Board to be examined according to these examination regulations. The application is irrevocable. Failed attempts and achievements will be recognized.
- (3) From the Winter semester 2023/24 onwards, these examination regulations in their current version will apply to all students who have been enrolled in the Master's degree program *Chemie* at TU Dortmund University, unless new examination regulations for the Master's degree program Chemistry at TU Dortmund University have already become valid.
- (4) These examination regulations are published in the Official Communications of TU Dortmund University and come into force on 1 October 2021.
- (5) The regulations of Sections 9 (2), 13 (1), 14 (1) sentence 7 as well as Section 22 apply to all students enrolled in the Master's degree programs Chemistry and the Master's degree program *Chemie*.

Issued on the basis of the resolutions of the Department Council of the Department of Chemistry and Chemical Biology of 1 December 2021 and the Rectorate of TU Dortmund University of 17 November 2021.

**Note**

Attention is drawn to the fact that, pursuant to Section 12 (5) of the Higher Education Act of the State of North Rhine-Westphalia (*Hochschulgesetz*, HG NRW), a violation of procedural or formal requirements of the university's regulatory or other autonomous law can no longer be asserted after the expiry of one year from the date of this announcement, unless

1. the regulations have not been duly published,
2. the Rectorate has previously objected to the decision of the committee adopting the regulations,
3. the formal or procedural fault has been notified to the university in advance and the violated legal provision and the fact giving rise to the fault have been indicated, or
4. the legal consequence of the exclusion of the right to complain was not pointed out when the regulations were publicly announced.

Dortmund, 10 December 2021

The President  
of TU Dortmund University  
Professor Dr. Manfred Bayer

**Appendix 1: Module overview for the Master's degree program Chemistry**

<b>Modules</b>	<b>Credit Points</b>	<b>Exam type</b>
M-WV-1	4	Module Examination
M-WV-2	4	Module Examination
M-WV-3	4	Module Examination
M-WV-4	4	Module Examination
M-WV-5	4	Module Examination
M-WV-6	4	Module Examination
M-WV-7	4	Module Examination
M-WV-8	4	Module Examination
M-WV-9	4	Module Examination
M-WV-10	4	Module Examination
M-WV-11	4	Module Examination
M-PR-1	9	Module Examination
M-PR-2	9	Module Examination
M-PR-3	9	Module Examination
M-PR-4	9	Module Examination
M-VMT-1	10	Module Examination
Master's thesis	25	Module Examination
Disputation	5	Module Examination

## Appendix 2: Study plan for the Master's degree program Chemistry

Pos.	Module	Courses 1 <sup>st</sup> semester	L	E	S	P	h	ECTS
1.1	M-WV-1	Compulsory elective course 1	2	1			3	4
1.2	M-WV-2	Compulsory elective course 2	2	1			3	4
1.3	M-WV-3	Compulsory elective course 3	2	1			3	4
1.4	M-PR-1	Compulsory advanced elective laboratory course 1			2	8	10	9
1.5	M-PR-2	Compulsory advanced elective laboratory course 2			2	8	10	9
<b>Total</b>			<b>6</b>	<b>3</b>	<b>4</b>	<b>16</b>	<b>29</b>	<b>30</b>

Pos.	Module	Courses 2 <sup>nd</sup> semester	L	E	S	P	h	ECTS
2.1	M-WV-4	Compulsory elective course 4	2	1			3	4
2.2	M-WV-5	Compulsory elective course 5	2	1			3	4
2.3	M-WV-6	Compulsory elective course 6	2	1			3	4
2.4	M-PR-3	Compulsory advanced elective laboratory course 3			2	8	10	9
2.5	M-PR-4	Compulsory advanced elective laboratory course 4			2	8	10	9
<b>Total</b>			<b>6</b>	<b>3</b>	<b>4</b>	<b>16</b>	<b>29</b>	<b>30</b>

Pos.	Module	Courses 3 <sup>rd</sup> semester	L	E	S	P	h	ECTS
3.1	M-WV-7	Compulsory elective course 7	2	1				4
3.2	M-WV-8	Compulsory elective course 8	2	1				4
3.3	M-WV-9	Compulsory elective course 9	2	1				4
4.1	M-WV-10	Compulsory elective course 10	2	1				4
4.2	M-WV-11	Compulsory elective course 11	2	1				4
3.4	M-VMT-1	Research laboratory course in the major subject (with advanced seminar)			2	10		10
<b>Total</b>			<b>10</b>	<b>5</b>	<b>2</b>	<b>10</b>	<b>27</b>	<b>30</b>

Pos.	Module	Courses 4 <sup>th</sup> semester	L	E	S	P	h	ECTS
4.3		Master's thesis						25
4.4		Disputation / defense of the Master's Thesis						5
<b>Total</b>								<b>30</b>

<b>Total for degree program</b>			<b>22</b>	<b>11</b>	<b>10</b>	<b>42</b>	<b>85</b>	<b>120</b>
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L: Lecture, E: Exercise, S: Seminar, P: Laboratory Course, h: weekly hours per semester