



LUDWIG-  
MAXIMILIANS-  
UNIVERSITÄT  
MÜNCHEN



# **Examination and Study Regulations of Ludwig-Maximilians-Universität München for the master's degree program in Biochemistry (2015)**

**From March 18, 2016**

*Please note that this version is solely intended as a guide for prospective students and students with little or no knowledge of German.*

*Only the version of the Examination and Study Regulations officially published in German is legally binding.*

On the basis of Art. 13 (1) sentence 2 in conjunction with Art. 58 (1) sentence 1 and Art. 61 (2) sentence 1 of the Bavarian Higher Education Act, Ludwig-Maximilians-Universität München issues the following statutes:

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## **I. General**

### **§ 1**

#### **Subject matter of the degree program and purpose of the master's examination**

(1) <sup>1</sup>The consecutive and more research-oriented master's degree program in Biochemistry imparts in-depth and specialized knowledge in biochemistry as well as chemistry or biology, enabling independent research in the field of biochemistry and its applications as well as interdisciplinary occupation. <sup>2</sup>In addition, depending on the students' choices, they may acquire further knowledge and skills in subjects related to biochemistry, such as medicine and computer science.

(2) <sup>1</sup>The master's examination (§ 9 paragraph 1), which must be taken during the course of study, constitutes the professional qualification for the master's degree program in biochemistry. <sup>2</sup>The master's examination determines whether the student has an overview of the subject and is able to critically assess it, has the ability to apply its scientific methods and findings, and has acquired the thorough specialist knowledge necessary for the transition to professional practice.

(3) <sup>1</sup>Key qualifications are also taught as part of the courses in this master's degree program. <sup>2</sup>Key qualifications include, in particular

1. the ability to research, evaluate, consolidate, and structure knowledge and information,
2. overview knowledge of key areas of expertise in the respective subject,
3. interconnected thinking,
4. organizational and transfer skills,
5. information and media literacy,
6. learning and presentation techniques,
7. ability to convey knowledge,
8. teamwork and communication skills, including gender-specific aspects,
9. language skills, and
10. IT knowledge and skills.

(4) The courses and the associated module examinations and sub-module examinations are held exclusively in English.

## **§ 2**

### **Academic degree**

The Faculty of Chemistry and Pharmacy and the Faculty of Biology award the academic degree "Master of Science" (abbreviated: "M.Sc.") upon successful completion of the master's degree program.

## **§ 3**

### **Admission requirements**

(1) <sup>1</sup>The prerequisite for enrollment in this master's degree program is proof of a professionally qualifying academic degree comprising at least 180 ECTS credits or an equivalent degree from Germany or abroad in the subject area of biochemistry, biology, chemistry, or a related subject. <sup>2</sup>Further admission requirements may be specified in separate statutes of Ludwig-Maximilians-Universität München.

(2) The decision on whether the admission requirements within the meaning of paragraph 1 have been met shall be made during the enrollment procedure in consultation with the responsible Board of Examiners.

(3) If the requirements of paragraph 1 are not met, participation in module examinations and sub-module examinations shall be deemed not to have taken place, unless subsequent proof of the requirements of paragraph 1 has been expressly permitted and is provided within the specified period.

## **§ 4**

### **Central Student Advisory Services and Academic Counseling**

(1) <sup>1</sup>The Central Student Advisory Services at Ludwig-Maximilians-Universität München provides information and advice, particularly on interdisciplinary issues. <sup>2</sup>Students should make use of this service, particularly before beginning their studies, when planning to change their degree program, and for all questions relating to restricted admission.

(2) <sup>1</sup>Academic counseling is carried out by the responsible Academic Advisor at faculty-level under the responsibility of the Faculty of Chemistry and Pharmacy and the Faculty of Biology. <sup>2</sup>The counseling covers, in particular, questions regarding the content and timing of study planning. <sup>3</sup>Information on questions concerning examinations or the recognition of study and exam results is provided, in particular, by the members of the Board of Examiners and/or the Examination Office.

## **II. Duration, structure, and course of study**

### **§ 5**

#### **Start of studies, standard length of study, weekly hours per semester**

(1) This master's degree program can be started in the winter semester and in the summer semester.

(2) <sup>1</sup>The standard length of study is four semesters, including the time required to complete the master's thesis. <sup>2</sup>A total of no more than 85 weekly semester hours (SWS) are required.

### **§ 6**

#### **ECTS credits**

(1) <sup>1</sup>A total of 120 credits according to the European Credit Transfer System (ECTS credits) must be earned in this master's degree program. <sup>2</sup>ECTS credits are a quantitative measure of the student's total workload. <sup>3</sup>They include both direct instruction in all courses and forms of instruction specified in § 8 paragraph 1 sentence 2 and the time spent preparing for and reviewing the course material (classroom and self-study), the effort required for exam preparation, and the examinations taken. <sup>4</sup>One ECTS credit corresponds to a workload of 30 hours, so that the total workload within the standard length of study (§ 5 paragraph 2 sentence 1) per semester is 900 hours.

(2) <sup>1</sup>In each semester, students shall acquire the ECTS credits specified in Appendix 2/column 18. <sup>2</sup>ECTS credits shall only be awarded for modules that have been passed (§ 10 (4) sentence 2).

### **§ 7**

#### **Modularization and modules**

(1) <sup>1</sup>The program of study in this master's degree program is modular in structure and is regulated in a binding manner in Appendix 2. <sup>2</sup>Empty cells in the tables in Appendix 2 have no regulatory content.

(2) <sup>1</sup>The master's degree program comprises compulsory and compulsory elective modules. <sup>2</sup>Compulsory modules must be completed without exception; students may choose from the compulsory elective modules. <sup>3</sup>No more than the required number of compulsory elective modules may be chosen. <sup>4</sup>A compulsory elective module must be selected at the latest by taking the corresponding module examination or sub-module examination; the selection is irrevocable.

(3) A module refers to a combination of courses that are thematically and timewise coordinated, as well as a module examination or one or more sub-module examinations, which are assessed with a number of ECTS credits determined in accordance with § 6 paragraph 1 according to the time required for successful participation.

(4) <sup>1</sup>In accordance with Appendix 2, a module generally extends over one, or at most two, semesters. <sup>2</sup>In accordance with Appendix 2/column 18, the scope of a module is a multiple of three ECTS credits.

(5) Participation in modules is subject to the fulfillment of requirements for admission; further details can be found in Appendix 2/column 2.

(6) Appendix 2 specifies

1. the modules,
2. their assignment to one or more semester of study,
3. their requirements for admission (Appendix 2/column 2),
4. the type of modules (compulsory or compulsory elective modules – Appendix 2/column 3), in the case of compulsory elective modules, additional information on the selection modalities,
5. the abbreviated names of the modules (Appendix 2/column 4),
6. the names of the modules (Appendix 2/column 5),
7. the frequency with which the modules are offered (semester or annually) (Appendix 2/column 6),
8. the ECTS credits to be awarded upon successful completion of the module (Appendix 2/column 18).

## **§ 8 Courses**

(1) <sup>1</sup>The objectives and content of the program as well as key qualifications (§ 1 paragraph 3) are taught in the courses and teaching formats specified in Appendix 2/columns 8 and 9. <sup>2</sup>In particular, the following courses and teaching formats may be prescribed in Appendix 2/columns 8 and 9:

1. lectures,
2. exercise courses,
3. seminars,
4. colloquia,
5. internships.

(2) All courses are assigned to modules.

(3) <sup>1</sup>The master's degree program comprises compulsory and compulsory elective courses. <sup>2</sup>Compulsory courses must be completed without exception; students may choose from among the compulsory elective courses. <sup>3</sup>No more than the required number of compulsory elective courses may be chosen. <sup>4</sup>An elective course is chosen at the latest by taking the corresponding module examination, sub-module examination, or preliminary examination; the choice is irrevocable. <sup>5</sup>Compulsory elective courses are assigned exclusively to compulsory elective modules in accordance with Appendix 2.

(4) Appendix 2 specifies

1. the courses,
2. the type of courses (compulsory or compulsory elective courses – Appendix 2/column 3), and for elective courses, additional information on the selection

- modalities,
3. the frequency (semester or annual) of the courses (Appendix 2/column 6),
  4. their assignment to a module,
  5. their assignment to one or more semester of study,
  6. their requirements for admission (Appendix 2/column 7),
  7. the abbreviated names of the courses (Appendix 2/column 4),
  8. the names of the courses (Appendix 2/column 8),
  9. the teaching methods used in the courses (Appendix 2/column 9),
  10. the number of hours per week per semester (Appendix 2/column 10),
  11. the ECTS credits allocated to the courses on a mathematical basis (Appendix 2/column 18).

### **III. Master's examination**

#### **Module examinations and sub-module examinations**

##### **§ 9**

#### **Module examinations and sub-module examinations as components of the master's examination**

(1) The Master's examination consists of module examinations and sub-module examinations.

(2) <sup>1</sup>Each module concludes with a module examination or a specific number of sub-module examinations in accordance with Appendix 2. <sup>2</sup>Once a module examination or sub-module examination has been passed, the ECTS credits assigned to it are recorded in the student's personal account (§ 12). <sup>3</sup>If a module examination is set by several course instructors without these being sub-module examinations, the regulations for sub-module examinations shall apply accordingly.

(3) In the module examination, the sub-module examination, or the sum of the sub-module examinations of the respective module, the student shall demonstrate that he or she has acquired the knowledge and skills taught in the course or courses assigned to the module in accordance with Appendix 2/columns 7 to 10.

(4) <sup>1</sup>Appendix 2 specifies

1. the module examinations and sub-module examinations,
2. their assignment to a module and, if applicable, a course,
3. their assignment to a semester of study (standard date – Appendix 2/column 1),
4. their requirements for admission (Appendix 2/column 11),
5. the type of examination (Appendix 2/column 12),
6. the examination format (Appendix 2/column 13),
7. the duration or scope of the examination (Appendix 2/column 14),
8. the type of assessment (grading or "pass" or "fail" – Appendix 2/column 15),
9. the weighting of the grade (Appendix 2/column 16),
10. repeatability (Appendix 2/column 17).



<sup>2</sup>If several forms of examination with assigned examination durations are specified in Appendix 2/columns 13 and 14, the course instructor shall determine which of the specified variants will be chosen and announce this at the beginning of the course.

## § 10

### Assessment of module examinations and sub-module examinations

(1) Modules examinations and sub-module examinations are assessed as "pass" or "fail" or graded.

(2) <sup>1</sup>The grade for a module examination or sub-module examination is determined by the respective examiner. <sup>2</sup>The following grades are to be used for the assessment of module examinations and sub-module examinations:

Grade 1	= "very good"	= outstanding performance;
Grade 2	= "good"	= performance significantly above requirements;
Grade 3	= "satisfactory"	= performance that meets average requirements;
Grade 4	= "adequate"	= performance that still meets requirements despite its shortcomings;
Grade 5	= "unsatisfactory"	= performance that no longer meets the requirements due to significant shortcomings.

<sup>3</sup>For a differentiated assessment of the module examinations and sub-module examinations, the grades may be increased or decreased by 0.3 to intermediate values; the grades 0.7, 4.3, 4.7, and 5.3 are excluded. <sup>4</sup>If a module examination or module examination is graded by several examiners or if a module examination or sub-module examination consists of several partial performances (§ 11 paragraph 1 sentence 3), the overall grade for the module examination or sub-module examination is calculated from the arithmetic mean of the individual assessments. <sup>5</sup>Only the first two decimal places are taken into account. <sup>6</sup>The grade designation according to sentence 4 is:

for an average up to and including 1.50	= "very good";
for an average of 1.51 to 2.50 inclusive	= "good";
with an average of 2.51 to 3.50 inclusive	= "satisfactory";
with an average of 3.51 to 4.00 inclusive	= "sufficient."

(3) <sup>1</sup>The module grade

1. is determined in the case of a module examination or in the case of only one graded sub-module examination (§ 9 paragraph 2) from paragraph 2 and
2. is calculated for sub-module examinations (§ 9 paragraph 2) from the arithmetic mean of the individual assessments graded according to Appendix 2/column 15 and weighted according to Appendix 2/column 16 in the sub-module examinations belonging to the respective module.

<sup>2</sup>Unless otherwise specified in Appendix 2/column 16, the sub-module examinations are included in the arithmetic mean to be calculated in accordance with sentence 1 no. 2 with the ECTS credits assigned to them in Appendix 2/column 18. <sup>3</sup>Paragraph 2 sentences 5 and 6 apply accordingly.

(4) <sup>1</sup>If, within a module, sub-module examinations are successfully completed for more courses than are required to pass the module, only the ECTS credits required to pass the module shall be taken into account when calculating the module grade. <sup>2</sup>To pass a module, it is necessary to pass

1. the module examination assigned to the compulsory courses, all sub-module examinations or and/or all preliminary work in the manner specified in Appendix 2, and
2. the module examination assigned to the required compulsory elective courses, all sub-module examinations, and/or all preliminary work in a manner specified in Appendix 2.

<sup>3</sup>If sub-module examinations or and prior achievements are taken for more compulsory elective courses than are required to be completed in accordance with sentence 2 no. 2, the first to be successfully completed shall be deemed necessary within the meaning of sentence 2, subject to § 8 paragraph 3. <sup>4</sup>In the case of compulsory elective courses, sub-module examinations or and prior achievements assigned to them

1. which were successfully completed in different semesters, the earlier ones,
2. those successfully completed in the same semester, the better ones

shall be considered. <sup>5</sup>The elective course whose sub-module examination or prior achievement exceeds the number of ECTS credits assigned to the respective module for the first time shall be taken into account with the number of ECTS credits attributed to it only to the extent that the number of ECTS credits assigned to the respective module is not exceeded.

## **§ 11**

### **Passing, failing, and repeating module examinations and sub-module examinations**

(1) <sup>1</sup>A module examination or sub-module examination is passed if it is graded

1. with "pass" or
2. with at least "sufficient" (4.0).

<sup>2</sup>Subject to § 31, module examinations and sub-module examinations should be passed by the end of the semester specified in Appendix 2/column 1 at the latest (standard date); information in brackets in Appendix 2/column 1 are only recommendations. <sup>3</sup>Module examinations and sub-module examinations are passed if, subject to § 31, all required partial achievements have been successfully completed by the end of the semester following the standard deadline at the latest.

(2) <sup>1</sup>If Appendix 2/column 1 contains an entry in brackets for a module examination or sub-module examination, the end of the fourth semester shall be deemed the standard date. <sup>2</sup>This module examination or sub-module examination shall be deemed passed if, subject to § 31, it has been successfully completed by the end of the fifth semester at the latest.

(3) Module examinations and sub-module examinations are also passed if the requirements of paragraphs 1 and 2 are not met within the period specified therein, but

are met within the framework of paragraph 6 or a repeat permitted under these Examination and Study Regulations.

(4) <sup>1</sup>Module examinations or sub-module examinations are failed if they have been taken in whole or in part but have not been passed. <sup>2</sup>Module examinations or sub-module examinations are definitively failed if they have been taken in whole or in part but have not been passed and there is no longer any possibility of repeating them.

(5) <sup>1</sup> Subject to § 31, module examinations or sub-module examinations are deemed to have been,

1. taken and failed if they have not been successfully completed by the end of the semester following the regular deadline for reasons for which the student is responsible, and
2. definitively failed if they have not been successfully completed at the end of the third semester following the standard deadline for reasons for which the student is responsible.

<sup>2</sup>If Appendix 2/column 1 contains an entry in brackets for a module examination or sub-module examination, this module examination or sub-module examination shall be deemed to have been

1. taken and failed if it has not been successfully completed by the end of the fifth semester for reasons for which the student is responsible, and
2. definitively failed if it has not been successfully completed by the end of the seventh semester for reasons for which the student is responsible,

subject to § 31.

<sup>3</sup>Reasons that are intended to justify exceeding one of the deadlines in sentences 1 and/or 2 must be asserted in writing and substantiated to the Examination Office immediately after they arise. <sup>4</sup>In the event of illness, a medical certificate must be submitted; the submission of a certificate of incapacity for work is not sufficient. <sup>5</sup>The Examination Office may, in individual cases or in general, require the submission of a certificate from a public health officer or a certificate from a doctor designated by the Examination Office. <sup>6</sup>If the reason is accepted, a new date will be set. <sup>7</sup>In the case of divisible module examinations and sub-module examinations, examination results already available shall be taken into account.

(6) <sup>1</sup>A module examination or sub-module examination that is failed for the first time shall be deemed not to have been taken if it has been taken in full after uninterrupted study of the subject, at the latest by the end of the semester specified as the standard date in paragraph 1, sentence 2, or the semester specified as the standard date in paragraph 2, sentence 1 (free examination attempt). <sup>2</sup>Periods of study recognized under these Examination and Study Regulations in the event of a change of university, degree program, or subject are credited toward the subject studies. <sup>3</sup>Semesters in which students were on leave of absence (§ 48 paragraph 2 sentence 1 BayHSchG) shall not be taken into account, nor shall periods which meet the requirements of § 31 or in which the respective student was unable to take a module examination or sub-module examination for reasons beyond his or her control. <sup>4</sup>Paragraph 5 sentences 3 to 5 apply accordingly. <sup>5</sup>Partial achievements passed within the framework of the free examination attempt are credited. <sup>6</sup>Sentences 1 to 5 do not apply to

the master's thesis (§ 14).

(7) A failed module examination or sub-module examination, with the exception of the master's thesis (§ 14), may be repeated any number of times, subject to a deviating provision in Appendix 2/column 17 and without prejudice to paragraph 6.

(8) Students who have failed a module examination or sub-module examination must be given the opportunity to repeat the course or courses associated with this module examination or sub-module examination before their last attempt to pass this module examination or sub-module examination.

(9) The repetition of a module examination or sub-module examination that has already been passed, with the exception of the master's thesis (§ 14), for the purpose of retaking for a better grade is only possible once at the next possible regular date, whereby the better result counts.

(10) The grade obtained in a module examination or sub-module examination and the associated ECTS credits may only be counted once in this master's degree program within the meaning of § 6 paragraph 1 sentence 1.

## **§ 12**

### **Account statements**

<sup>1</sup>A personal account is set up at the Examination Office for students enrolled in this master's degree program, in which

1. all passed module examinations and sub-module examinations (§ 11 paragraphs 1 to 3) are recorded with the note "passed" or with the grade awarded and the assigned ECTS credits, and
2. all failed module examinations and sub-module examinations (§ 11 paragraph 4 and paragraph 5) are recorded with the note "failed" or with the grade awarded.

<sup>2</sup>At the beginning of the next semester, students shall receive a personal account statement within the meaning of sentence 1 as a notification with information on legal remedies.

## **2. Special module examinations and sub-module examinations**

### **§ 13**

#### **(not applicable)**

### **§ 14**

#### **Master's thesis**

(1) The master's thesis is a module examination.

(2) The master's thesis should demonstrate that the student is able to work independently on a problem from his or her subject using scientific methods within a specified period of time (paragraph 7).

(3) <sup>1</sup>The master's thesis is under supervision of a person appointed as the primary examiner in accordance with § 24 paragraph 3 no. 3 (supervisor). <sup>2</sup>If the master's thesis is to be carried out at an institution outside Ludwig-Maximilians-Universität München, the approval of the chair of the Board of Examiners is required.

(4) <sup>1</sup>The procedure for assigning topics and checking requirements for admission shall be announced by the Examination Office in the manner customary for the location during the first two weeks after the start of the penultimate semester for students; an announcement by the Examination Office exclusively on the Internet shall be sufficient. <sup>2</sup>The topic and date of issue of the master's thesis shall be recorded by the Examination Office. <sup>3</sup>The student may express topic preferences; the supervisor is not bound by these. <sup>4</sup>The topic may only be returned once and only within two weeks of being assigned. <sup>5</sup>The order pursuant to § 28 paragraph 2 sentence 3 shall be deemed to have been issued; § 28 paragraph 3 shall apply accordingly.

(5) <sup>1</sup>The supervisor is obliged to

1. assign the topic of the master's thesis in good time and
2. to evaluate the master's thesis in good time so that

the Examination Office receives the assessment no later than two weeks before the end of the student's last semester. <sup>2</sup>Sentence 1 no. 2 applies according to a second examiner.

(6) <sup>1</sup>Students who have not been assigned a topic for a master's thesis in a timely manner within the meaning of paragraph 4 sentence 1 must immediately report to the chair of the Board of Examiners. <sup>2</sup>The chair of the Board of Examiners is obliged to ensure that each student is assigned a topic for a master's thesis.

(7) <sup>1</sup>The processing time for the master's thesis is 26 weeks. <sup>2</sup>30 ECTS credits are awarded for the master's thesis.

(8) <sup>1</sup>Two copies of the master's thesis must be submitted to the Examination Office by the deadline; the date of submission must be recorded. <sup>2</sup>Upon submission, the candidate must certify in writing that they have written the thesis independently and have not used any sources or aids other than those specified. <sup>3</sup>The Board of Examiners may require, either generally or in individual cases, that the master's thesis also be submitted in electronic form and may specify technical requirements for this purpose.

(9) <sup>1</sup>The master's thesis shall be assessed by the supervisor of the master's thesis (paragraph 3, sentence 1). <sup>2</sup>Master's theses that are to be assessed as "failed" shall be assessed by a second examiner (§ 24 paragraph 3 No. 3).

(10) <sup>1</sup>If the master's thesis is graded lower than "sufficient" (4.0), it may be repeated once at the next possible regular date. <sup>2</sup>However, the topic of the master's thesis may only be resubmitted within the period specified in paragraph 4, sentence 4 if the student did not make use of this option when writing their first thesis.

**§ 15**  
**(not applicable)**

**3. Types of examinations**

**§ 16**  
**Oral module examinations and sub-module examinations**

(1) <sup>1</sup>Oral module examinations and sub-module examinations are intended to enable students to demonstrate that they understand the interrelationships within the examination area and are able to classify specific questions within these interrelationships. <sup>2</sup>Furthermore, it should be determined whether the student has a basic knowledge according to the level of the master's program.

(2) The duration of the oral module examinations or sub-module examinations for each examinee is specified in Appendix 2/column 14.

(3) <sup>1</sup>The main subjects and results of the oral module examinations and sub-module examinations shall be recorded in a protocol. <sup>2</sup>The result shall be communicated to the student immediately after the oral module examination or sub-module examination.

**§ 17**  
**Exams and other written supervised work**

(1) <sup>1</sup>In exams and other supervised written assignments, students should demonstrate that they are able to solve problems and work on topics using the standard methods of their subject, based on the necessary fundamental knowledge, within a limited time and with limited resources. <sup>2</sup>Students may be given a choice of topics; however, they are not entitled to this.

(2) The duration of exams and other supervised written assignments is specified in Appendix 2/column 14.

(3) <sup>1</sup>Written module examinations and sub-module examinations may be conducted in whole or in part in such a way that the examinee must indicate which of the suggested answers provided with the examination questions he or she considers to be correct (multiple-choice procedure). <sup>2</sup>The exam questions must enable reliable exam results. <sup>3</sup>All examinees must be given the same exam questions. <sup>4</sup>When setting the exam questions, it must be specified which answer options are recognized as correct. <sup>5</sup>The examination questions must be checked by the question setters before the examination results are determined to ensure that they do not contain any errors in relation to the requirements of sentence 2. <sup>6</sup>If this check reveals that individual examination questions are incorrect, these questions shall not be taken into account when determining the examination results. <sup>7</sup>The number of examination questions for the individual module examinations and sub-module examinations shall be reduced

accordingly. <sup>8</sup>When assessing the written module examination or sub-module examination in accordance with paragraph 4, sentence 1, the reduced number of examination questions shall be taken as a basis. <sup>9</sup>The reduction in the number of examination questions must not be to the detriment of any candidate.

(4) <sup>1</sup>Written module examinations and sub-module examinations in accordance with paragraph 3, sentence 1, which consist of single-choice questions (exactly one of a total of  $n$  answer options is correct – "1 out of  $n$ "), shall be deemed to have been passed if

1. the examinee has answered at least 60 percent of the examination tasks correctly, or
2. the examinee has answered at least 50 percent of the examination questions correctly and the number of examination questions answered correctly by the examinee is no more than 15 percent below the average examination of examinees who took the examination according to the first time.

<sup>2</sup>If sentence 1 no. 2 is applied, the vice dean (students) of the Faculty of Chemistry and Pharmacy and the vice dean (students) of the Faculty of Biology must be informed. <sup>3</sup>If the examinee has achieved the minimum number of correctly answered exam questions required to pass the examination according to sentence 1, the grade is

1. "very good" if they have achieved at least 75 percent,
2. "good" if they have achieved at least 50 but less than 75 percent,
3. "satisfactory" if it is at least 25 but less than 50 percent,
4. "adequate" if it has answered none or less than 25 percent

of the additional exam questions correctly.

(5) <sup>1</sup>For examinations pursuant to paragraph 3, sentence 1, which consist of multiple-choice questions (an unknown number  $x$  between zero and  $n$  of a total of  $n$  possible answers is correct – " $x$  out of  $n$ ") shall apply, with the proviso that instead of the ratio of correctly answered exam questions to the total number of exam questions, the ratio of the total raw points achieved by the examinee to the maximum achievable score shall be decisive. <sup>2</sup>For each multiple-choice question, a score is determined that according to the number of possible answers ( $n$ ) can be multiplied by a weighting factor for the individual multiple-choice question. <sup>3</sup>The examinee receives a base score for a multiple-choice question that corresponds to the assessment score if the answer choices selected by the examinee completely match the answer choices recognized as correct. <sup>4</sup>One point is awarded for the base score for each match between a suggested answer selected or not selected by the examinee and a suggested answer recognized as correct or incorrect. <sup>5</sup>If a correct answer option is not selected by the examinee or if an incorrect answer option is selected by the examinee, one minus point is awarded for the basic score. <sup>6</sup>The basic score for a multiple-choice question cannot be less than zero points. <sup>7</sup>The raw points are calculated by multiplying the base score by the respective weighting factor of the multiple-choice question. <sup>8</sup>The maximum total score achievable is calculated by adding up the products of all scores with the respective weighting factor of all multiple-choice questions.

(6) In the case of written module examinations or sub-module examinations that are only partially conducted using the multiple-choice method, paragraphs 3 to 5 shall only apply to the part concerned.

(7) <sup>1</sup>A written module examination or sub-module examination may also be conducted in electronic form. <sup>2</sup>The type and scope of the electronic performance assessment shall be announced by the course instructor at the beginning of the course. <sup>3</sup>Students shall be given sufficient opportunity to familiarize themselves with the electronic examination system before the examination as part of the course. <sup>4</sup>Data protection regulations must be observed.

## **§ 18**

### **Other forms of module examinations and sub-module examinations**

(1) <sup>1</sup>A presentation is an independently prepared talk that should be supported by appropriate visual aids. <sup>2</sup>The presentation may be followed by a technical discussion.

(2) Scientific reports contain a written, systematic review of a subject-specific course, including a critical discussion of the content.

(3) <sup>1</sup>An internship report serves to describe scientific experiments. <sup>2</sup>It documents the underlying topic or hypothesis, the experimental setup and implementation, the observations, and the evaluated results. <sup>3</sup>The internship report contributes to quality assurance.

(4) An internship assessment is the joint, final evaluation of the work performed in a semester in the respective internship.

(5) Further details can be found in Appendix 2.

## **4. Result of the master's examination**

## **§ 19**

### **Passing and failing the master's examination**

(1) The master's examination must be passed by the end of the fourth semester.

(2) <sup>1</sup>The master's examination is passed if, by the end of the fifth semester at the latest

1. all module examinations or sub-module examinations of the compulsory modules and the required compulsory elective modules have been passed in the manner specified in Appendix 2, and
2. the required number of 120 ECTS credits has been earned.

<sup>2</sup>The master's examination is also passed if the requirements of sentence 1 are not met within the period specified therein, but are met within the framework of § 11 paragraph 6 or a repeat permitted under these Examination and Study Regulations.



(3) The master's examination is definitively failed if the module examination or a sub-module examination of one of the compulsory modules or required compulsory elective modules specified in Appendix 2 has been taken but not passed, § 11 paragraph 6 does not allow for a further attempt, and there is no possibility of repeating the examination.

(4) <sup>1</sup>Subject to § 11 paragraph 6, 8, and 9 and § 31 the master's examination counts

1. as having been taken for the first time and failed if the deadline specified in paragraph 1 is exceeded by more than one semester for reasons for which the student is responsible, and
2. as definitively failed if the period specified in paragraph 1 is exceeded by more than three semesters for reasons for which the student is responsible.

<sup>2</sup>§ 11 paragraph 5 sentences 3 to 7 apply accordingly.

## **§ 20**

### **Notification and certification in case of failure**

(1) If the master's examination

1. has been definitively failed in accordance with § 19 paragraph 3 or
2. has been definitively failed in accordance with § 19 paragraph 4 sentence 1 no. 2,

the chair of the Board of Examiners shall issue a written notification to this effect, including information on the legal remedies.

(2) If the master's examination has not been passed or is considered failed, a certification will be issued upon request and upon presentation of the certificate of exmatriculation, which contains the successfully completed module examinations and sub-module examinations, the assigned ECTS credits and grades, as well as a statement that the master's examination has not been passed.

## **§ 21**

### **Calculation of the final grade**

<sup>1</sup>If the master's examination has been passed in accordance with § 19 paragraph 2, the final grade is calculated from the arithmetic mean of the module grades weighted in accordance with Appendix 2/column 16; § 10 paragraph 3 sentences 2 and 3 apply according to the calculation of the final grade from the module grades. <sup>2</sup>If more than 120 ECTS credits are earned in the master's examination, only the 120 ECTS credits required to pass the master's examination are taken into account when calculating the final grade. <sup>3</sup>To pass the master's examination, the following must be passed

1. all module examinations and sub-module examinations assigned to the compulsory modules in the manner specified in Appendix 2, and
2. all module examinations and sub-module examinations assigned to the compulsory elective modules in the manner specified in Appendix 2.

<sup>4</sup>If module examinations and/or sub-module examinations are taken for more compulsory elective modules than are required to be completed in accordance with sentence 3 no. 2, the first to be successfully completed shall be deemed necessary within the meaning of sentence 2, subject to § 7 paragraph 2 sentences 3 and 4. <sup>5</sup>In the case of module examinations or sub-module examinations assigned to compulsory elective modules,

1. which were successfully completed in different semesters, the earlier ones,
2. those successfully completed in the same semester, the better ones

shall be taken into account. <sup>6</sup>The compulsory elective module whose module examination or sub-module examination exceeds 120 ECTS credits for the first time shall only be taken into account with the number of ECTS credits attributed to it to the extent that 120 ECTS credits are not exceeded.

## **§ 22**

### **Master's Diploma, Master's Certificate, Transcript of Records, and Diploma Supplement**

(1) <sup>1</sup>After passing the master's examination, the student receives a Master's Diploma in German and a Master's Diploma in English, bearing the date on which the last module examination or sub-module examination was taken. <sup>2</sup>This certifies the award of the academic degree in accordance with § 2.

(2) <sup>1</sup>At the same time as the Master's Diplomas, the student will receive the Master's Certificate in German and the Master's Certificate in English, bearing the date of the Master's diploma. <sup>2</sup>The Master's Certificates must include the topic of the Master's thesis and its grade, as well as the final grade.

(3) <sup>1</sup>The Examination Office shall also issue a Transcript of Records in English, which shall include all modules completed and the corresponding module examinations and sub-module examinations, including the ECTS credits and grades awarded for them. <sup>2</sup>Module examinations and sub-module examinations that are not included in the master's examination in accordance with § 19 and § 21 shall be included for information purposes.

(4) The Examination Office shall also issue a Diploma Supplement in English with information on the type and level of the master's degree, the status of Ludwig-Maximilians-Universität München, and detailed information on the master's degree program.

(5) <sup>1</sup>The Master's Diplomas in German and English shall be signed by the Dean of the Faculty of Chemistry and Pharmacy and by the Chair of the Board of Examiners; the Master's Certificates in German and English shall be signed by the Chair of the Board of Examiners; the Transcript of Records and the Diploma Supplement shall be signed by the Head of the Examination Office. <sup>2</sup>The Master's Diplomas in German and English, Master's Certificates in German and English, Transcript of Records, and Diploma Supplement shall bear the seal of Ludwig-Maximilians-Universität München.

(6) <sup>1</sup>If, after a Master's Diploma in German and English, Master's Certificate in German and English, Transcript of Records, Diploma Supplement, other certificate, other document, or account statement has been issued and handed over, it transpires that

unauthorized aids were used or deception was committed, The Board of Examiners may subsequently correct the relevant assessments and declare the examination wholly or partially failed. <sup>2</sup>The incorrect Master's Diplomas, Master's Certificates, Transcript of Records, Diploma Supplement, other incorrect certificate, other incorrect document, or incorrect account statement shall be confiscated. <sup>3</sup>If the requirements are met, a correct Master's Diploma in German and English, a correct Master's Certificate in German and English, a correct Transcript of Records, a correct Diploma Supplement, a correct other certificate, a correct other diploma, or a correct final account statement shall be issued. <sup>4</sup>Such a decision shall be excluded after a period of five years from the date of the master's certificate. <sup>5</sup>Before a decision is made in accordance with sentence 1 and/or sentence 2, the student shall be given the opportunity to comment. <sup>6</sup>Adverse decisions shall be communicated to the student in writing without delay, stating the reasons and providing information on legal remedies.

#### **IV. Examination bodies and examination administration**

##### **§ 23**

##### **Board of Examiners and Examination Office**

(1) <sup>1</sup>The Board of Examiners consists of six members who must be authorized to conduct examinations in accordance with § 62 paragraph 1 sentence 2 BayHSchG in conjunction with the Higher Education Examination Regulations (HSchPrüferV) in their currently valid version. <sup>2</sup>Three members shall be appointed by the Faculty Council of the Faculty of Chemistry and Pharmacy, and three members shall be appointed by the Faculty Council of the Faculty of Biology. <sup>3</sup>The term of office of the members of the Board of Examiners shall be two years. <sup>4</sup>Reappointment is permitted.

(2) <sup>1</sup>The members appoint a chairperson and a deputy chairperson from among their number. <sup>2</sup>The term of office of the chairperson and the deputy chairperson is two years. <sup>3</sup>Reappointment is permitted.

(3) <sup>1</sup>The Board of Examiners shall constitute a quorum if all members have been invited in writing or electronically at least one week before the meeting, stating the agenda, and the majority of the members are present and entitled to vote. <sup>2</sup>It shall decide by a majority of the votes cast in meetings; abstentions, secret ballots, and proxy voting are not permitted. <sup>3</sup>In the event of a tie, the chairperson shall have the casting vote. <sup>4</sup>The exclusion of a member of the Board of Examiners from deliberations and voting in the Board of Examiners and from examination activities shall be determined in accordance with § 41 paragraph 2 BayHSchG.

(4) <sup>1</sup>The Board of Examiners is responsible for organizing examinations, appointing examiners and assessors (§ 24 paragraph 3), and making decisions on examination matters. <sup>2</sup>The Board of Examiners is supported in the performance of its duties by the Examination Office. <sup>3</sup>The Board of Examiners shall ensure that the provisions of these Examination and Study Regulations are complied with. <sup>4</sup>It shall report regularly to the vice dean (students) of the Faculty of Chemistry and Pharmacy and the vice dean (students) of the Faculty of Biology on the development of examinations and study periods and shall make suggestions for the reform and appropriate updating of these Examination and Study Regulations.

(5) <sup>1</sup>The Board of Examiners may, in a revocable manner, delegate the performance of certain tasks to the chairperson of the Board of Examiners, his or her deputy, or the Examination Office. <sup>2</sup>In all other respects, the chair of the Board of Examiners is authorized to make urgent decisions on behalf of the Board of Examiners; he or she must inform the Board of Examiners of such decisions without delay.

(6) The Board of Examiners shall adopt rules of procedure.

(7) The members of the Board of Examiners have the right to attend the examinations.

## **§ 24**

### **Examiners and observers**

(1) <sup>1</sup>In the case of module examinations and sub-module examinations that only relate to one course and with the exception of the master's thesis, subject to paragraph 4, sentence 1, the examiner shall be the course instructor responsible for the course.

<sup>2</sup>In the case of module examinations and sub-module examinations that relate to several courses taught by different course instructors, the Board of Examiners shall appoint a course instructor as the examiner, either generally or in individual cases.

<sup>3</sup>Sentence 2 shall apply according to law if the course instructor is not authorized to conduct examinations (paragraph 4, sentence 1).

(2) Written module examinations and sub-module examinations that are to be graded as "failed" must be assessed by two examiners; oral module examinations and sub-module examinations must be conducted by at least one examiner and one expert observer (paragraph 3, no. 1).

(3) The Board of Examiners shall appoint, either generally or in individual cases

1. the observers for oral module examinations and sub-module examinations,
2. a second examiner for module examinations and sub-module examinations that are to be graded as "failed,"
3. for the master's thesis, one examiner (§ 14 paragraph 3) or several examiners (§ 14 paragraph 9).

(4) <sup>1</sup>Only those persons who are authorized to conduct examinations in accordance with § 62 (1) sentence 2 BayHSchG in conjunction with the HSchPrüferV may serve as examiners. <sup>2</sup>Observers must be knowledgeable persons who have successfully completed at least one master's degree program or have a comparable qualification.

(5) The individual examiners and invigilators are responsible for conducting the examination procedure.

## **§ 25**

### **Program coordinator, Duties of the examiners**

(1) <sup>1</sup>The program coordinator for this master's degree program is appointed by the Faculty of Chemistry and Pharmacy and the Faculty of Biology. <sup>2</sup>Until an appointment

has been made, the vice dean (students) of the Faculty of Chemistry and Pharmacy and the vice dean (students) of the Faculty of Biology shall perform the duties. <sup>3</sup>The program coordinator shall perform the following duties in cooperation with the Board of Examiners, the Examination Office, and the Central University Administration

1. in the establishment and possible changes to this master's degree program:
  - a) reviewing the modeling of these Examination and Study Regulations from a specialist perspective,
  - b) preparing the necessary information about this master's degree program for students and examiners,
2. thereafter: the coordination and organization of courses, module examinations, and sub-module examinations, namely
  - a) the convening of an annual curriculum conference,
  - b) the assignment of the specific courses to the abstract courses prescribed in these Examination and Study Regulations,
  - c) announcing the courses in the university catalog,
  - d) the entry of courses into the electronic data processing system,
  - e) scheduling and room allocation for courses, module examinations, and sub-module examinations, and
  - f) entering the assessment into the electronic data processing system.

(2) <sup>1</sup>Examiners (§ 24) are obliged to inform the Examination Office immediately, using a standardized form provided by the Examination Office, which students participated in their course and with what results. <sup>2</sup>The notifications must be submitted to the Examination Office in a timely manner and in the correct form; the Examination Office shall announce at the latest at the beginning of each semester when the notifications must be submitted to the Examination Office. <sup>3</sup>If the requirements of sentence 2 are not met, the courses in question will not be included in the current account statements (§ 12). <sup>4</sup>The examiner is obliged to submit these notifications to the Examination Office as soon as possible and to send all affected students individual certificates in the form of a notification with information on legal remedies by post.

## **§ 26**

### **Students' obligations to cooperate, confirmation of notifications**

<sup>1</sup>Students are obliged to confirm receipt of information, notifications, and administrative acts of the Board of Examiners or Examination Office sent to them, handed to them, or retrieved electronically by them in the required form at their own expense (confirmation of receipt). <sup>2</sup>Confirmation of receipt can be provided free of charge on the premises of Ludwig-Maximilians-Universität München. <sup>3</sup>During the first two weeks of the lecture period, the Examination Office shall announce, in the manner customary for the location, when information, notifications, and administrative acts will be posted or sent, or when they can be retrieved or collected electronically. <sup>4</sup>The general legal provisions apply to the delivery of such information, notifications, and administrative acts. <sup>5</sup>For students who do not take note of posted information, notices, and administrative documents, do not retrieve or collect information made available electronically, do not accept mailed items, or do not collect items deposited by a shipping company, this information, notices, and administrative documents shall be deemed to

have been received and announced one month after posting, making available for electronic retrieval or collection, or mailing. <sup>6</sup>If the Examination Office resends information, notices, and administrative documents because the student does not send the confirmation of receipt provided for in sentence 1 and/or does not take note of posted information, notices, and administrative documents posted on the notice board, does not retrieve or collect them electronically, and does not accept them when sent or does not collect them when deposited by a shipping company, the student shall bear the costs incurred by the resending. <sup>7</sup>The Examination Office is not obliged to attempt to resend the information.

## **V. Conduct of examinations**

### **§ 27**

#### **Recognition of prior acquired skills**

(1) <sup>1</sup>Study periods, academic achievements, and examinations obtained in another degree program at Ludwig-Maximilians-Universität München or in degree programs at other state or state-recognized universities in the Federal Republic of Germany, through successful participation in a distance learning unit as part of a degree program at a state or state-recognized university in the Federal Republic of Germany or in degree programs at foreign universities, shall be credited unless there are significant differences in terms of the skills acquired (learning outcomes). <sup>2</sup>The same applies to periods of study, academic achievements, and examinations completed at a state or state-recognized university in Bavaria as part of other courses of study pursuant to § 56 paragraph 6 nos. 1 and 2 BayHSchG, in special programs offered pursuant to § 47 paragraph 3 sentence 1 BayHSchG, or at the Virtual University of Bavaria.

(2) <sup>1</sup>Competencies acquired in the context of other continuing education studies pursuant to § 56 paragraph 6 no. 3 BayHSchG or outside the higher education sector may be credited if they are equivalent. <sup>2</sup>Competencies acquired outside the higher education sector may replace no more than half of the competencies to be demonstrated.

(3) <sup>1</sup>If study or examination achievements are credited, the grades shall be adopted – insofar as the grading systems correspond – and included in the calculation of the module and final grade in accordance with these Examination and Study Regulations. <sup>2</sup>The adopted grades shall be marked and the fact of their adoption shall be noted in the certificate. <sup>3</sup>If the grading systems do not correspond, the chair of the Board of Examiners shall determine a grade for the credited academic and examination on the basis of the assessment levels specified in §10 paragraph 2 and proceed in accordance with sentences 1 and 2. <sup>4</sup>Sentences 1 to 3 shall apply according to the allocation of ECTS credits.

(4) <sup>1</sup>The documents required for credit transfer must be submitted by students to the Board of Examiners no later than the end of the first semester spent at Ludwig-Maximilians-Universität München after enrollment in this master's degree program, provided that periods of study and examination achievements that were already completed prior to enrollment in this master's degree program at Ludwig-Maximilians-Universität München are to be credited. <sup>2</sup>For the crediting of periods of study and study

and exam achievements completed after enrollment in this master's degree program at Ludwig-Maximilians-Universität München, the documents must be submitted in the semester following their acquisition. <sup>3</sup>Proof of study periods to be credited is usually provided by submitting the record of study from the university where the study period was completed. <sup>4</sup>For the recognition of study and exam results, a certification must be submitted from the university where the study and exam results were completed, which must show

1. which individual examinations (oral and/or written) in which examination subjects had to be taken as part of the overall examination,
2. which examinations were actually taken,
3. the assessment of study and examination performance and, if applicable, the subject grade,
4. the grading system on which the assessment is based,
5. for degree programs with credit point systems, the credit points awarded for the individual courses in which the academic and examination achievements to be credited were completed, as well as the number of credit points required for successful completion of the degree program,
6. the scope of the individual courses in which the academic and examination achievements to be credited were completed, in semester hours per week, and
7. whether an overall examination has been failed on the basis of the available results or is considered failed due to other circumstances.

<sup>5</sup>Appropriate evidence (certificates, documentation, etc.) must be submitted for the crediting of skills acquired outside the higher education sector.

(5) For certificates and documents that are not issued in English, a certified English translation may be required.

(6) The Board of Examiners shall decide on the recognition of study and exam results, in cases of doubt after consulting the relevant subject representative.

## **§ 28**

### **Enrollment in courses and registration for module examinations and sub-module examinations; study management measures**

(1) <sup>1</sup>The Board of Examiners may stipulate that enrollment is required for participation in individual or all courses and may regulate the form and deadline for such enrollment. <sup>2</sup>Students who have not enrolled in a course for which enrollment is required in accordance with sentence 1, or who have not enrolled in the correct form and/or within the deadline, are not entitled to participate in this course. <sup>3</sup>The courses for which registration is required, as well as the form and deadline for registration, shall be announced by the Examination Office in the manner customary for the location during the first two weeks after the start of the semester; an announcement by the Examination Office exclusively on the Internet is sufficient.

(2) <sup>1</sup>Registration is required for all module examinations and sub-module examinations; the form and deadline for registration are specified by the Board of Examiners. <sup>2</sup>Students who have not registered for a module examination or sub-module examination, or who have not registered in the correct form and/or by the deadline, are not entitled to participate in this module examination or sub-module examination. <sup>3</sup>The

Board of Examiners may also generally stipulate that a module examination or sub-module examination for which the student has registered shall be deemed failed if the student does not attend or withdraws from the module examination or sub-module examination for reasons for which he or she is responsible. <sup>4</sup>Paragraph 1, sentence 3 applies according to the form and deadline for the respective registration.

(3) <sup>1</sup>A written record shall be made of the announcements pursuant to paragraph 1, sentence 3, and paragraph 2, sentence 4, which shall contain, in particular, details of the content of the determinations and the time, manner, and place of their announcement. <sup>2</sup>The record shall be signed by the chair of the Board of Examiners and kept by the Examination Office for at least five years.

(4) Study-related measures shall be laid down in separate statutes of Ludwig-Maximilians-Universität München.

## **§ 29**

### **Absence, withdrawal**

(1) A module examination or sub-module examination shall be considered "failed" or graded "unsatisfactory" (5.0) if the student

1. misses an examination date for a module examination or sub-module examination for which he or she has registered and for which the Board of Examiners has issued an order in accordance with § 28 paragraph 2 sentence 3 for a reason for which he or she is responsible, or
2. withdraws from a module examination or sub-module examination that he or she has taken for reasons for which he or she is responsible, or
3. has not completed a written module examination or sub-module examination within the specified time limit for reasons for which he or she is responsible.

(2) <sup>1</sup>The reason for withdrawal or absence must be asserted and substantiated in writing to the Examination Office without delay. <sup>2</sup>Section 11 paragraph 5 sentences 4 to 7 apply accordingly.

## **§ 30**

### **Deception, breach of regulations**

(1) If the student attempts to influence the result of a module examination or sub-module examination by deception or the use of unauthorized aids for their own or another person's benefit, the module examination or sub-module examination in question will be graded "fail" or "unsatisfactory" (5.0); In the case of written module examinations and sub-module examinations, the mere possession of unauthorized aids during and after the distribution of the examination documents shall be considered an attempt.

(2) A student who disrupts the proper conduct of the examination may be excluded from continuing the module examination or sub-module examination by the respective examiner or supervisor; in this case, the module examination or sub-module examination will be graded as "fail" or "unsatisfactory" (5.0).



(3) In serious or repeated cases of paragraph 1 and/or paragraph 2, the Board of Examiners may exclude the student from taking individual or all further module examinations and sub-module examinations; in the latter case, the student will be exmatriculated in accordance with § 49 paragraph 2 no. 3 BayHSchG.

(4) § 22 paragraph 6 sentences 5 and 6 apply accordingly.

### **§ 31**

#### **Protective provisions under the Maternity Protection Act, the Federal Parental Allowance and Parental Leave Act and the Long-Term Care Act**

(1) The protective provisions according to Sections 3, 4, 6, and 8 of the Act on the Protection of Working Mothers (Maternity Protection Act – MuSchG) in the version published on June 20, 2002 (BGBl I p. 2318) in the currently applicable version, according to the deadlines specified in the Act on Parental Allowance and Parental Leave (Federal Parental Allowance and Parental Leave Act – BEEG) in the version published on January 27, 2015 (BGBl I p. 33) in the currently valid version on parental leave and for the care of a close relative within the meaning of Section 7 (3) of the Act on Care Leave (Long-Term Care Act – PflegeZG) of May 28, 2008 (BGBl I p. 874, 896) in the currently valid version, who is in need of care within the meaning of Sections 14, 15 of the Eleventh Book of the Social Code (SGB XI) of May 26, 1994 (BGBl I p. 1014, 1015) in the currently valid version will be granted.

(2) <sup>1</sup>The Board of Examiners shall determine which courses pose above-average risks to pregnant or breastfeeding students and shall issue a warning according to the risks. <sup>2</sup>The Board of Examiners shall prohibit pregnant or breastfeeding students from participating in courses that pose significantly above-average risks to the mother and/or child. <sup>3</sup>The Board of Examiners shall determine whether and how pregnant or breastfeeding students can otherwise acquire the knowledge and skills taught in courses in which they are not permitted to participate. <sup>4</sup>There is no legal entitlement to the provision of special courses for pregnant or breastfeeding students. <sup>5</sup>The courses, warnings, and prohibitions referred to in sentences 1 and 2, as well as the possibility of acquiring the knowledge and skills referred to in sentence 3 elsewhere, shall be announced by the examination office in the manner customary for the location; an announcement by the examination office exclusively on the Internet shall be sufficient.

### **§ 32**

#### **Compensation for disadvantages**

(1) <sup>1</sup>Severely disabled persons and persons of equal status (§ 2 paragraph 2 and paragraph 3 of the Social Security Code – Ninth Book – SGB IX, as amended) shall, upon application, be granted an extension of the examination duration of up to one quarter of the normal examination duration by the Board of Examiners, depending on the severity of the proven examination disability. <sup>2</sup>In cases of particularly severe examination disabilities, the examination duration may be extended by up to half of the normal examination duration upon request. <sup>3</sup>In addition to or instead of an extension of the examination duration, other appropriate compensation may be granted.

(2) <sup>1</sup>Other examinees who are significantly impaired in taking the module examinations or sub-module examinations due to a diagnosed, non-temporary physical disability or chronic illness may be granted compensation for disadvantages in accordance with paragraph 1. <sup>2</sup>In the case of temporary disabilities, other appropriate measures may be taken.

(3) <sup>1</sup>Applications for compensation for disadvantages must be submitted at the latest when registering for a module examination or sub-module examination or at the latest one month before the respective module examination or sub-module examination. <sup>2</sup>The disability must be substantiated. <sup>3</sup>The Board of Examiners may require that the disability be substantiated by a medical certificate. <sup>4</sup>Section 11 paragraph 5 sentences 4 and 5 apply accordingly.

### **§ 33**

#### **Deficiencies in the examination procedure**

(1) If it turns out that an examination procedure was afflicted with significant deficiencies that may have influenced the examination result, it shall be ordered, at the request of a participant or ex officio, that certain or all participants repeat the entire module examination or sub-module examination or a single part thereof.

(2) <sup>1</sup>Alleged deficiencies in the examination procedure or an inability to take the examination that occurred before or during the module examination or sub-module examination must be asserted and substantiated immediately, at the latest before the examination results are announced, to the supervisor, the examiner, the Examination Office, or the chair of the Board of Examiners. <sup>2</sup>Reasons asserted and substantiated orally within the meaning of sentence 1 must also be asserted and substantiated in writing to the Examination Office or the chair of the Board of Examiners without delay. <sup>3</sup>Claims and substantiation are excluded in any case if one month has elapsed since the date on which the module examination or sub-module examination was taken. <sup>4</sup>§ 11 paragraph 5 sentences 3 to 7 apply accordingly.

### **§ 34**

#### **Access of examination files, retention periods**

(1) Within three months of completing a module examination or sub-module examination, students may apply to the Examination Office to inspect the examination, the related assessments, and the minutes within a reasonable period of time. <sup>2</sup>The Examination Office may announce that, contrary to sentence 1, inspection pursuant to sentence 1 shall take place at another location within Ludwig-Maximilians-Universität München; an announcement of the other location by the Examination Office exclusively on the Internet shall suffice. <sup>3</sup>The complete examination files shall be retained for at least five years. <sup>4</sup>The basic file, consisting of copies of the master's degree certificate, the master's diploma, the master's certificate, and the transcript of records, shall be retained indefinitely. <sup>5</sup>The files may be stored in electronic form.

## **VI. Final provisions**

### **§ 35**

#### **Entry into force and transitional provisions**

(1) These statutes shall enter into force on October 1, 2015.

(2) <sup>1</sup>Anyone who was already enrolled in the master's degree program in Biochemistry at Ludwig-Maximilians-Universität München before October 1, 2015, and has been studying on the basis of the Examination Regulations for the master's degree program in Biochemistry at Ludwig-Maximilians-Universität München (2004) of November 10, 2005, shall continue their studies on the basis of the aforementioned statutes. <sup>2</sup>Anyone who enrolls in the master's degree program in Biochemistry at Ludwig-Maximilians-Universität München on or after October 1, 2015, will study on the basis of the Examination and Study Regulations of Ludwig-Maximilians-Universität München for the master's degree program in Biochemistry (2015) dated March 18, 2016.

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
4 Master's program: Biochemistry (Master of Science, M.Sc.)																120	
1st semester																	
A total of 30 ECTS credits must be completed per semester.																	
	None	P	P 1	Focus Biochemistry - Practical Training	WS and SS												15
(1.)		P	P 1.1		WS and SS	None	Advanced research internship in biochemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)
(1.)		P	P 1.2		WS and SS	None	Advanced seminar in Biochemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
	None	P	P 2 / I	Focus Biochemistry I	WS												
		P	P 2.1		WS	None	Life cycle of proteins	Lecture	2								(3)
		P	P 2.2		WS	None	Flow of genetic information	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*	
(1.)	None	P	P 3	Fundamentals of data analysis	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6	
		P	P 3.1		WS and SS	None	Practical bioinformatics	Lecture	1								(1,5)	
		P	P 3.2		WS and SS	None	Exercise on Practical Bioinformatics	Exercise	1								(1,5)	
		P	P 3.3		WS and SS	None	Statistics and Data Analysis	Lecture	1								(1,5)	
		P	P 3.3		WS and SS	None	Exercise on Statistics and Data Analysis	Exercise	1								(1,5)	

There are two options for choosing from the compulsory elective modules WP 1 to WP 57.

Option A:

From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement to Molecular Plant Sciences", "Supplement to Immunology", "Supplement to Cell Biology", "Supplement to Microbiology", "Supplement to Virology", "Supplement to Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry", three compulsory elective areas must be selected.

- For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51
1. for the compulsory elective area "Supplement to Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,
  2. for the compulsory elective area "Supplemental Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,
  3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,
  4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,
  5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,
  6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,
  7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,
  8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,
  9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,
  10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,
  11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p>12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37, 13. for the compulsory elective area "Supplemental Computer Science", from the elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits, 14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41, 15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43, 16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45, 17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47, 18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49, 19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51.</p> <p><u>Option B:</u></p> <p>From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry" one area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51 1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11, 2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13, 3. for the compulsory elective area "Supplement Molecular and Cellular Genetics," the compulsory elective modules WP 3 and WP 14, 4. for the compulsory elective area "Supplement Genetics," the compulsory elective modules WP 4 and WP 15, 5. for the compulsory elective area "Supplemental Human Biology," the compulsory elective modules WP 5 and WP 16, 6. for the compulsory elective area "Supplemental Molecular Plant Sciences," the compulsory elective modules WP 6 and WP 17, 7. for the compulsory elective area "Supplemental Immunology," the compulsory elective modules WP 7 and WP 18, 8. for the compulsory elective area "Supplemental Cell Biology," the compulsory elective modules WP 19 and WP 33, 9. for the compulsory elective area "Supplement Microbiology," the compulsory elective modules WP 20 and WP 34, 10. for the compulsory elective area "Supplemental Virology," the compulsory elective modules WP 21 and WP 35, 11. for the compulsory elective area "Supplemental Evolutionary Biology," the compulsory elective modules WP 22 and WP 36, 12. for the compulsory elective area "Supplemental Neurobiology," the compulsory elective modules WP 23 and WP 37,</p>																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p>13. for the compulsory elective area "Supplemental Computer Science", from the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits,</p> <p>14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,</p> <p>15. for the compulsory elective area "Supplement to Biological Chemistry", the compulsory elective modules WP 42 and WP 43,</p> <p>16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,</p> <p>17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,</p> <p>18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,</p> <p>19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51</p> <p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry", "Focus on Physical Chemistry", and "Focus on Theoretical Chemistry", one area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57</p> <p>1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52,</p> <p>2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53,</p> <p>3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54,</p> <p>4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55,</p> <p>5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56,</p> <p>6. for the elective area "Focus on Theoretical Chemistry," the compulsory elective modules WP 32 and WP 57, must be selected.</p> <p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology".</p> <p>Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology".</p> <p>Those who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry".</p> <p>Those who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry".</p> <p>Those who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry".</p> <p>Those who choose the compulsory elective area "Supplement to Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	
(1.)	None	WP	WP 1	Supplement Lecture in molecular systems biology	WS					None	MP	Exam or oral exam	60-90 minutes or 30-45 minutes	Grading		Any	3
		P	WP 1.1		WS	None	Lecture from Molecular Systems Biology	Lecture	2								(3)
(1.)	None	WP	WP 2	Supplement Lecture in Structural Biology	WS					None	MP	Exam or oral exam	60-90 minutes or 30-45 minutes	Grading		Any	3
		P	WP 2.1		WS	None	Lecture from Structural Biology	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 3 / I	Supplement Molecular and Cellular Genetics	WS												
		P	WP 3.1		WS	None	Post-transcriptional Gene Regulation	Lecture	2								(3)
	None	WP	WP 4 / I	Supplement Genetics	WS												
		P	WP 4.1		WS	None	Lecture Fundamentals of genetics	Lecture	2								(3)
	None	WP	WP 5 / I	Supplement Human Biology	WS												
		P	WP 5.1		WS	None	Lecture Fundamentals of Human Biology	Lecture	2								(3)
	None	WP	WP 6 / I	Supplement Molecular Plant Sciences	WS												
		P	WP 6.1		WS	None	Lecture Fundamentals of Plant Sciences	Lecture	2								(3)
	None	WP	WP 7 / I	Supplement Immunology	WS												
		P	WP 7.1		WS	None	Lecture from Immunology	Lecture	2								(3)
	None	WP	WP 8 / I	Focus Cell Biology - Internship	WS and SS												
(1.)		P	WP 8.1		WS and SS	None	Advanced seminar in Cell Biology	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table



Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 9 / I	Focus Microbiology - Internship	WS and SS												
(1.)		P	WP 9.1		WS and SS	None	Advanced seminar in Microbiology	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
<b>2nd semester</b>																	
(2.)	None	P	P 2 / II	Focus Biochemistry I	SS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
		P	P 2.3		SS	None	Model organisms	Lecture	2								(3)
	None	P	P 4 / I	Focus Biochemistry II	SS												
		P	P 4.1		SS	None	Subject-specific Seminar in biochemistry	Seminar	2								(3)
(2.)	None	P	P 5	Methods in the Life Sciences	WS and SS					None	MP	Presentation or Internship report	30 minutes or approx. 5,000 words	Grading		Any	9
		P	P 5.1		WS and SS	None	Laboratory practical in life sciences	Internship	10								(7,5)
		P	P 5.2		WS and SS	None	Advanced seminar in life sciences	Seminar	1								(1,5)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
There are two options for choosing from the compulsory elective modules WP 1 to WP 57.																	
Option A:																	
From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement Molecular Plant Sciences", "Supplement to Immunology", "Supplement to Cell Biology", "Supplement to Microbiology", "Supplement to Virology", "Supplement to Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry", three compulsory elective areas must be selected.																	
For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51																	
1. for the compulsory elective area "Supplement to Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,																	
2. for the compulsory elective area "Supplemental Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,																	
3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,																	
4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,																	
5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,																	
6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,																	
7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,																	
8. for the compulsory elective area "Supplement to Cell Biology", the compulsory elective modules WP 19 and WP 33,																	
9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,																	
10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,																	
11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,																	
12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,																	
13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39, compulsory elective modules totaling 15 ECTS credits,																	
14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,																	
15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,																	
16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,																	
17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,																	
18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,																	
19. for the compulsory elective area "Supplement to Theoretical Chemistry", the elective modules WP 50 and WP 51 must be selected.																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
Option B:  From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry" one compulsory elective area must be selected.  To this end, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51 1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11, 2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13, 3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the elective modules WP 3 and WP 14,  4. for the compulsory elective area "Supplement to Genetics", the compulsory elective modules WP 4 and WP 15, 5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16, 6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17, 7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18, 8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33, 9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34, 10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35, 11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36, 12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37, 13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits, 14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41, 15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43, 16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45, 17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47, 18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49, 19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry", "Focus on Physical Chemistry", and "Focus on Theoretical Chemistry", one compulsory elective area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57</p> <ol style="list-style-type: none"> <li>1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52,</li> <li>2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53,</li> <li>3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54,</li> <li>4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55,</li> <li>5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56,</li> <li>6. for the compulsory elective area "Focus on Theoretical Chemistry", the compulsory elective modules WP 32 and WP 57,</li> </ol> <p>must be selected.</p> <p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology".</p> <p>Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology".</p> <p>Those who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry".</p> <p>Those who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry".</p> <p>Those who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry".</p> <p>Those who choose the compulsory elective area "Supplement to Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	
(2.)	None	WP	WP 3 / II	Supplement Molecular and Cellular Genetics	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 3.2		SS	None	Genetic control of complex processes	Lecture	2								(3)
(2.)	None	WP	WP 4 / II	Supplement Genetics	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 4.2		SS	None	Advanced lecture in Genetics	Lecture	2								(3)
(2.)	None	WP	WP 5 / II	Supplement Human Biology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 5.2		SS	None	Advanced lecture in Human Biology	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*	
(2.)	None	WP	WP 6 / II	Supplement Molecular Plant Sciences	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6	
		P	WP 6.2		SS	None	Advanced lecture in Plant Sciences	Lecture	2								(3)	
(2.)	None	WP	WP 7 / II	Supplement Immunology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6	
		P	WP 7.2		SS	None	Advanced topics in Immunology	Lecture	2								(3)	
	None	WP	WP 8 / II	Focus Cell Biology - Internship	WS and SS												15	
(2.)		P	WP 8.2		WS and SS	None	Advanced research internship in Cell Biology	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
	None	WP	WP 9 / II	Focus Microbiology - Internship	WS and SS												15	
(2.)		P	WP 9.2		WS and SS	None	Advanced research internship in microbiology	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 10	Supplement Advanced topics in molecular systems biology	SS					None	MP	Exam or Presentation or scientific protocol or oral examination	60-90 minutes or 10-20 minutes or approx. 2,500 words or 30-45 minutes	Grading		Any	3
		P	WP 10.1		SS	None	Advanced topics in molecular systems biology	Seminar	2								(3)
(2.)	Success- ful partici- pation in WP 1	WP	WP 11	Supplement Molecular Systems Biology - Practical Course	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 11.1		WS and SS	None	Research internship in molecular systems biology	Internship	10								(9)
(2.)	None	WP	WP 12	Supplement Advanced topics in structural biology	SS					None	MP	Exam or Presentation or scientific protocol or oral examination	60-90 minutes or 10-20 minutes or approx. 2,500 words or 30-45 minutes	Grading		Any	3
		P	WP 12.1		SS	None	Advanced topics in structural biology	Seminar	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

1	Modules					Courses				Module examinations / sub-module examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(2.)	Successful participation in WP 2	WP	WP 13	Supplement Structural Biology - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 13.1		WS and SS	None	Research internship in Structural Biology	Internship	10								(9)
(2.)	None	WP	WP 14	Supplement Molecular and Cellular Genetics - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 14.1		WS and SS	None	Research internship in Molecular and Cellular Genetics	Internship	10								(9)
(2.)	None	WP	WP 15	Supplement Genetics - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 15.1		WS and SS	None	Research internship in Genetics	Internship	10								(9)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 16	Supplement Human Biology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 16.1		WS and SS	None	Research internship in Human Biology	Internship	10								(9)
(2.)	None	WP	WP 17	Supplement Molecular Plant Sciences - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 17.1		WS and SS	None	Research internship in Molecular Plant Sciences	Internship	10								(9)
(2.)	None	WP	WP 18	Supplement Immunology - Practical training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 18.1		WS and SS	None	Research internship in Immunology	Internship	10								(9)

\*) Explanations for columns 1, 12, and 18 at the end of the table



Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 19 / I	Supplement Cell Biology	SS												
A total of two compulsory elective courses must be selected from compulsory elective courses WP 19.0.1 to WP 19.0.6.																	
		WP	WP 19.0.1		SS	None	Advanced lecture in Cell Biology	Lecture	2								(3)
		WP	WP 19.0.2		SS	None	Advanced Methods Lecture in cell biology	Lecture	2								(3)
		WP	WP 19.0.3		SS	None	Plant Cell and Developmental Biology	Lecture	2								(3)
	None	WP	WP 20 / I	Supplement Microbiology	SS												
A total of two compulsory elective courses must be selected from the compulsory elective courses WP 20.0.1 to WP 20.0.3.																	
		WP	WP 20.0.1		SS	None	Advanced lecture in Microbiology	Lecture	2								(3)
	None	WP	WP 21 / I	Supplement Virology	SS												
		P	WP 21.1		SS	None	Current topics in virology	Lecture	2								(3)
	None	WP	WP 22 / I	Supplement Evolutionary Biology	SS												
		P	WP 22.1		SS	None	Current topics in evolutionary biology	Lecture	2								(3)
	None	WP	WP 23 / I	Supplement Neurobiology	SS												
		P	WP 23.1		SS	None	Current topics in neurobiology	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 24	Introduction to Computer Science: Systems and Applications	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 24.1		SS	None	Lecture Introduction to Computer Science: Systems and Applications	Lecture	2								(3)
		P	WP 24.2		SS	None	Exercise for Introduction to Computer Science: Systems and Applications	Exercise	3								(3)
(2.)	None	WP	WP 25	Computer Architecture	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 25.1		SS	None	Lecture Computer Architecture	Lecture	3								(3)
		P	WP 25.2		SS	None	Exercise on Computer Architecture	Exercise	2								(3)
(2.)	None	WP	WP 26	Programming and Modeling	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 26.1		SS	None	Lecture Programming and Modeling	Lecture	2								(2)
		P	WP 26.2		SS	None	Exercise on Programming and modeling	Exercise	3								(4)

\*) Explanations for columns 1, 12, and 18 at the end of the table

1	Modules					Courses				Module examinations / sub-module examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 27 / I	Focus Cell Biology I	SS												
A total of three compulsory elective courses must be selected from the compulsory elective courses WP 27.0.1 to WP 27.0.6.																	
		WP	WP 27.0.1		SS	None	Advanced lecture in Cell Biology	Lecture	2								(3)
		WP	WP 27.0.2		SS	None	Advanced Methods Lecture in cell biology	Lecture	2								(3)
		WP	WP 27.0.3		SS	None	Plant Cell and Developmental Biology	Lecture	2								(3)
	None	WP	WP 28 / I	Focus Microbiology I	SS												
		P	WP 28.1		SS	None	Advanced lecture in Microbiology	Lecture	2								(3)
	None	WP	WP 29 / I	Focus Inorganic Chemistry - Practical	WS and SS												
(2.)		P	WP 29.1		WS and SS	None	Seminar in inorganic chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
	None	WP	WP 30 / I	Focus Organic Chemistry - Internship	WS and SS												
(2.)		P	WP 30.1		WS and SS	None	Seminar in Organic Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
	None	WP	WP 31 / I	Focus Physical Chemistry - Practical	WS and SS												
(2.)		P	WP 31.1		WS and SS	None	Seminar in Physical Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 32 / I	Focus Theoretical Chemistry - Internship	WS and SS												
(2.)		P	WP 32.1		WS and SS	None	Seminar in Theoretical Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
<b>3rd semester</b>																	
(3.)	None	P	P 4 / II	Focus Biochemistry II	WS and SS					None	MP	Presentation or Scientific protocol	30 minutes or approx. 3,500 words	passed/ failed		Any	6
		P	P 4.2		WS and SS	None	Subject-specific Colloquium in biochemistry	Colloquium	2								(3)

There are two options for choosing from compulsory elective modules WP 1 to WP 57.

Option A:

From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement to Molecular Plant Sciences", "Supplement to Immunology", "Supplement to Cell Biology", "Supplement to Microbiology", "Supplement to Virology", "Supplement to Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry", three elective areas must be selected.

- For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51
1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,
  2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,
  3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules				Courses						Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p>4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15, 5. for the compulsory elective area "Supplement Human Biology", the compulsory elective modules WP 5 and WP 16, 6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17, 7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18, 8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33, 9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34, 10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35, 11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36, 12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37, 13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits, 14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41, 15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43, 16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45, 17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47, 18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49, 19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.</p> <p><u>Option B:</u></p> <p>From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry" one compulsory elective area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51</p> <p>1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11, 2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13, 3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14, 4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15, 5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16, 6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17, 7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18, 8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33, 9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,</p>																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p>10. for the compulsory elective area "Supplement to Virology", the compulsory elective modules WP 21 and WP 35,  11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,  12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,  13. for the compulsory elective area "Supplemental Computer Science", from the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39  compulsory elective modules totaling 15 ECTS credits,  14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,  15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,  16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,  17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,  18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,  19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51.</p> <p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry",  "Focus on Physical Chemistry", and "Focus on Theoretical Chemistry", one compulsory elective area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57</p> <p>1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52,  2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53,  3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54,  4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55,  5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56,  6. for the compulsory elective area "Focus on Theoretical Chemistry", the compulsory elective modules WP 32 and WP 57,  must be selected.</p> <p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology".  Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology".  Those who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry".  Those who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry".  Those who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry".  Those who choose the compulsory elective area "Supplement to Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 19 / II	Supplement Cell Biology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
A total of two compulsory elective courses must be selected from compulsory elective courses WP 19.0.1 to WP 19.0.6.																	
		WP	WP 19.0.4		WS	None	Lecture Fundamentals of Cell Biology	Lecture	2								(3)
		WP	WP 19.0.5		WS	None	Special lecture on cell biology	Lecture	2								(3)
		WP	WP 19.0.6		WS	None	Special lecture on methods of cell biology	Lecture	2								(3)
(3.)	None	WP	WP 20 / II	Supplement Microbiology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
A total of two compulsory elective courses must be selected from the compulsory elective courses WP 20.0.1 to WP 20.0.3.																	
		WP	WP 20.0.2		WS	None	Special lecture in microbiology	Lecture	2								(3)
		WP	WP 20.0.3		WS	None	Special lecture on methods of microbiology	Lecture	2								(3)
(3.)	None	WP	WP 21 / II	Supplement Virology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 21.2		WS	None	Lecture in virology	Lecture	2								(3)
(3.)	None	WP	WP 22 / II	Supplement Evolutionary biology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 22.2		WS	None	Lecture in evolutionary biology	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 23 / II	Supplement Neurobiology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 23.2		WS	None	Lecture in neurobiology	Lecture	2								(3)
(3.)	None	WP	WP 27 / II	Focus Cell Biology I	WS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
A total of three compulsory elective courses must be selected from the compulsory elective courses WP 27.0.1 to WP 27.0.6.																	
		WP	WP 27.0.4		WS	None	Lecture Fundamentals of Cell Biology	Lecture	2								(3)
		WP	WP 27.0.5		WS	None	Special lecture in Cell Biology	Lecture	2								(3)
		WP	WP 27.0.6		WS	None	Special lecture on methods of cell biology	Lecture	2								(3)
(3.)	None	WP	WP 28 / II	Focus Microbiology I	WS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
		P	WP 28.2		WS	None	Special lecture in microbiology	Lecture	2								(3)
		P	WP 28.3		WS	None	Special lecture on methods of microbiology	Lecture	2								(3)
	None	WP	WP 29 / II	Focus Inorganic Chemistry - Practical	WS and SS												15
(3.)		P	WP 29.2		WS and SS	None	Advanced research practical in inorganic chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)

\*) Explanations for columns 1, 12, and 18 at the end of the table



Modules						Courses				Module examinations / sub-module examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*	
	None	WP	WP 30 / II	Focus Organic Chemistry - Internship	WS and SS												15	
(3.)		P	WP 30.2		WS and SS	None	Advanced research practical in organic chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
	None	WP	WP 31 / II	Focus Physical Chemistry - Practical	WS and SS												15	
(3.)		P	WP 31.2		WS and SS	None	Advanced research internship in physical chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
	None	WP	WP 32 / II	Focus Theoretical Chemistry - Internship	WS and SS												15	
(3.)		P	WP 32.2		WS and SS	None	Advanced research internship in theoretical chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*	
(3.)	None	WP	WP 33	Supplement Cell Biology - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 33.1		WS and SS	None	Research Practicum in Cell Biology -	Internship	10								(9)	
(3.)	None	WP	WP 34	Supplement Microbiology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 34.1		WS and SS	None	Research internship in Microbiology	Internship	10								(9)	
(3.)	None	WP	WP 35	Supplement Virology - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 35.1		WS and SS	None	Research internship in virology	Internship	10								(9)	

\*) Explanations for columns 1, 12, and 18 at the end of the table

1	Modules					Courses				Module examinations / sub-module examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 36	Supplement Evolutionary Biology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 36.1		WS and SS	None	Research internship in evolutionary biology	Internship	10								(9)
(3.)	None	WP	WP 37	Supplement Neurobiology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 37.1		WS and SS	None	Research internship in neurobiology	Internship	10								(9)
(3.)	None	WP	WP 38	Introduction to Programming	WS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	9
		P	WP 38.1		WS	None	Lecture Introduction to Programming	Lecture	4								(6)
		P	WP 38.2		WS	None	Exercise on Introduction to Programming	Exercise	2								(3)
(3.)	None	WP	WP 39	Operating Systems	WS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 39.1		WS	None	Lecture Operating Systems	Lecture	3								(3)
		P	WP 39.2		WS	None	Exercise on Operating Systems	Exercise	2								(3)
(3.)	None	WP	WP 40	Subject-specific supplement to Biochemistry - practical training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9

\*) Explanations for columns 1, 12, and 18 at the end of the table

1	Modules					Courses				Module examinations / sub-module examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
		P	WP 40.1		WS and SS	None	Internship in the subject- specific supplement in biochemistry	Internship	10								(9)
(3.)	None	WP	WP 41	Subject-specific Supplement to Biochemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 41.1		WS and SS	None	Lecture on the subject-specific supplement to biochemistry	Lecture	2								(3)
		P	WP 41.2		WS and SS	None	Advanced topics in the subject- specific supplement to biochemistry	Lecture	2								(3)
(3.)	None	WP	WP 42	Supplement Biological Chemistry - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 42.1		WS and SS	None	Research Internship in Biological Chemistry	Internship	10								(9)
(3.)	None	WP	WP 43	Supplement Biological Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 43.1		WS and SS	None	Basics of Cloning, Genomics, and Proteomics	Lecture	2								(3)
		P	WP 43.2		WS and SS	None	Coenzymes and Biosynthesis	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 44	Supplement Inorganic Chemistry Laboratory	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 44.1		WS and SS	None	Research internship in Inorganic chemistry	Internship	10								(9)
(3.)	None	WP	WP 45	Supplement Inorganic Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 45.0.1 to WP 45.0.5.																	
		WP	WP 45.0.1		WS and SS	None	Current Inorganic Molecular Chemistry	Lecture	2								(3)
		WP	WP 45.0.2		WS and SS	None	Current Solid State Chemistry	Lecture	2								(3)
		WP	WP 45.0.3		WS and SS	None	Current Coordination Chemistry	Lecture	2								(3)
		WP	WP 45.0.4		WS and SS	None	Spectroscopic Methods in Inorganic Chemistry	Lecture	2								(3)
		WP	WP 45.0.5		WS and SS	None	Special lecture on inorganic chemistry	Lecture	2								(3)
(3.)	None	WP	WP 46	Supplement Organic Chemistry Practicum	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 46.1		WS and SS	None	Research internship in organic chemistry	Internship	10								(9)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 47	Supplement Organic Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be chosen from the compulsory elective courses WP 47.0.1 to WP 47.0.9.																	
		WP	WP 47.0.1		WS and SS	None	Physical organic chemistry	Lecture	2								(3)
		WP	WP 47.0.2		WS and SS	None	Heterocyclic and natural product chemistry	Lecture	2								(3)
		WP	WP 47.0.3		WS and SS	None	Modern synthesis methods	Lecture	2								(3)
		WP	WP 47.0.4		WS and SS	None	Synthesis strategies	Lecture	2								(3)
		WP	WP 47.0.5		WS and SS	None	Sugar chemistry	Lecture	2								(3)
		WP	WP 47.0.6		WS and SS	None	Reactive intermediate stages	Lecture	2								(3)
		WP	WP 47.0.7		WS and SS	None	Lecture on Biological Chemistry	Lecture	2								(3)
		WP	WP 47.0.8		WS and SS	None	Advanced topics in biological chemistry	Lecture	2								(3)
		WP	WP 47.0.9		WS and SS	None	Special lecture on organic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 48	Supplement Physical Chemistry - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 48.1		WS and SS	None	Research internship in Physical Chemistry	Internship	10								(9)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 49	Supplement Physical chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be chosen from the compulsory elective courses WP 49.0.1 to WP 49.0.11.																	
		WP	WP 49.0.1		WS and SS	None	Energy conversion	Lecture	2								(3)
		WP	WP 49.0.2		WS and SS	None	Electrochemistry	Lecture	2								(3)
		WP	WP 49.0.3		WS and SS	None	Electron microscopy	Lecture	2								(3)
		WP	WP 49.0.4		WS and SS	None	Optical microscopy methods	Lecture	2								(3)
		WP	WP 49.0.5		WS and SS	None	Solid-state spectroscopy	Lecture	2								(3)
		WP	WP 49.0.6		WS and SS	None	Fluorescence spectroscopy	Lecture	2								(3)
		WP	WP 49.0.7		WS and SS	None	Laser spectroscopy	Lecture	2								(3)
		WP	WP 49.0.8		WS and SS	None	Heterogeneous Catalysis	Lecture	2								(3)
		WP	WP 49.0.9		WS and SS	None	Surface physics	Lecture	2								(3)
		WP	WP 49.0.10		WS and SS	None	Nanoscience	Lecture	2								(3)
		WP	WP 49.0.11		WS and SS	None	Special lecture on physical chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table



1	Modules					Courses				Module examinations / sub-module examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 50	Supplement Theoretical Chemistry - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 50.1		WS and SS	None	Research internship in Theoretical Chemistry	Internship	10								(9)
(3.)	None	WP	WP 51	Supplement Theoretical Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 51.0.1 to WP 51.0.6.																	
		WP	WP 51.0.1		WS and SS	None	Molecular dynamics	Lecture	2								(3)
		WP	WP 51.0.2		WS and SS	None	Quantum dynamics	Lecture	2								(3)
		WP	WP 51.0.3		WS and SS	None	Density functional theory	Lecture	2								(3)
		WP	WP 51.0.4		WS and SS	None	Theoretical solid state chemistry	Lecture	2								(3)
		WP	WP 51.0.5		WS and SS	None	Linearly scaling quantum chemical methods	Lecture	2								(3)
		WP	WP 51.0.6		WS and SS	None	Special lecture on theoretical chemistry	Lecture	2								(3)
(3.)	None	WP	WP 52	Focus Cell Biology II	WS and SS					None	MP	Presentation or Scientific protocol	20 minutes or approx. 3,500 words	passed/ failed		Any	6

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
		P	WP 52.1		WS and SS	None	Subject-specific Colloquium in Cell Biology	Colloquium	2								(3)
		P	WP 52.2		WS and SS	None	Cell Biology Seminar	Seminar	2								(3)
(3.)	None	WP	WP 53	Focus Microbiology II	WS and SS					None	MP	Presentation or Scientific protocol	20 minutes or approx. 3,500 words	passed/ failed		Any	6
		P	WP 53.1		WS and SS	None	Subject-specific Colloquium in Microbiology	Colloquium	2								(3)
		P	WP 53.2		WS and SS	None	Microbiology Seminar	Seminar	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 54	Focus Inorganic Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 54.1		WS and SS	None	Subject-specific colloquium in inorganic chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 54.2.1 to WP 54.2.5. At least two of the compulsory elective courses WP 54.2.1 to WP 54.2.3 must be selected.																	
		WP	WP 54.2.1		WS and SS	None	Current Inorganic Molecular Chemistry	Lecture	2								(3)
		WP	WP 54.2.2		WS and SS	None	Current Solid State Chemistry	Lecture	2								(3)
		WP	WP 54.2.3		WS and SS	None	Current Coordination Chemistry	Lecture	2								(3)
		WP	WP 54.2.4		WS and SS	None	Spectroscopic Methods in Inorganic Chemistry	Lecture	2								(3)
		WP	WP 54.2.5		WS and SS	None	Special lecture on inorganic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 55	Focus Organic Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 55.1		WS and SS	None	Subject-specific colloquium in organic chemistry	Colloquium	3								(6)
Three compulsory elective courses must be chosen from the compulsory elective courses WP 55.2.1 to WP 55.2.9.																	
		WP	WP 55.2.1		WS and SS	None	Physical organic chemistry	Lecture	2								(3)
		WP	WP 55.2.2		WS and SS	None	Heterocyclic and natural product chemistry	Lecture	2								(3)
		WP	WP 55.2.3		WS and SS	None	Modern synthesis methods	Lecture	2								(3)
		WP	WP 55.2.4		WS and SS	None	Synthesis strategies	Lecture	2								(3)
		WP	WP 55.2.5		WS and SS	None	Sugar chemistry	Lecture	2								(3)
		WP	WP 55.2.6		WS and SS	None	Reactive intermediate stages	Lecture	2								(3)
		WP	WP 55.2.7		WS and SS	None	Lecture on Biological Chemistry	Lecture	2								(3)
		WP	WP 55.2.8		WS and SS	None	Advanced topics in biological chemistry	Lecture	2								(3)
		WP	WP 55.2.9		WS and SS	None	Special lecture on organic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 56	Focus Physical Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 56.1		WS and SS	None	Subject-specific colloquium in physical chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 56.2.1 to WP 56.2.11.																	
		WP	WP 56.2.1		WS and SS	None	Energy conversion	Lecture	2								(3)
		WP	WP 56.2.2		WS and SS	None	Electrochemistry	Lecture	2								(3)
		WP	WP 56.2.3		WS and SS	None	Electron microscopy	Lecture	2								(3)
		WP	WP 56.2.4		WS and SS	None	Optical microscopy methods	Lecture	2								(3)
		WP	WP 56.2.5		WS and SS	None	Solid-state spectroscopy	Lecture	2								(3)
		WP	WP 56.2.6		WS and SS	None	Fluorescence spectroscopy	Lecture	2								(3)
		WP	WP 56.2.7		WS and SS	None	Laser spectroscopy	Lecture	2								(3)
		WP	WP 56.2.8		WS and SS	None	Heterogeneous Catalysis	Lecture	2								(3)
		WP	WP 56.2.9		WS and SS	None	Surface physics	Lecture	2								(3)
		WP	WP 56.2.10		WS and SS	None	Nanoscience	Lecture	2								(3)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
		WP	WP 56.2.11		WS and SS	None	Special lecture on physical chemistry	Lecture	2								(3)
(3.)	None	WP	WP 57	Focus Theoretical Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 57.1		WS and SS	None	Subject-specific colloquium in theoretical chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 57.2.1 to WP 57.2.6.																	
		WP	WP 57.2.1		WS and SS	None	Molecular dynamics	Lecture	2								(3)
		WP	WP 57.2.2		WS and SS	None	Quantum dynamics	Lecture	2								(3)
		WP	WP 57.2.3		WS and SS	None	Density functional theory	Lecture	2								(3)
		WP	WP 57.2.4		WS and SS	None	Theoretical solid state chemistry	Lecture	2								(3)
		WP	WP 57.2.5		WS and SS	None	Linearly scaling quantum chemical methods	Lecture	2								(3)
		WP	WP 57.2.6		WS and SS	None	Special lecture on theoretical chemistry	Lecture	2								(3)
4th semester																	
(4.)	successful participation in P 1 to P 3 and P 5	P	P 6	Final module	WS and SS					None	MP, MAA	Master's thesis	26 weeks, approx. 30,000 words	Grading		once, next date	30
		P	P 6.1		WS and SS	None	Master's thesis	Master's thesis									(30)

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / sub-module examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / Compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass/fail	Grade weight	Repeatability	ECTS credits*
<p><b>Explanations</b></p> <p><u>Regarding column 1:</u></p> <p>Numbers in parentheses are recommendations; numbers not in parentheses specify a binding regulatory deadline (§ 11).</p> <p><u>Regarding column 12:</u></p> <p>MP = module examination / MTP = sub-module examination / MAA = master's thesis</p> <p><u>Regarding column 18:</u></p> <p>ECTS credits not enclosed in brackets are awarded upon passing the corresponding module (§ 10 (4) sentence 2). ECTS credits enclosed in brackets are used for calculation purposes only.</p>																	

\*) Explanations for columns 1, 12, and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
4 Master's program: Biochemistry (Master of Science, M.Sc.)																	120	
1st semester																		
A total of 30 ECTS credits must be completed per semester.																		
	None	P	P 1	Focus Biochemistry - Practical training	WS and SS												15	
(1.)		P	P 1.1		WS and SS	None	Advanced research internship in biochemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
(1.)		P	P 1.2		WS and SS	None	Advanced seminar in biochemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)	
	None	P	P 2 / II	Focus Biochemistry I	SS													
		P	P 2.3		SS	None	Model organisms	Lecture	2								(3)	
(1.)	None	P	P 5	Methods in the Life Sciences	WS and SS					None	MP	Presentation or Internship report	30 minutes or approx. 5,000 words	Grading		Any	9	
		P	P 5.1		WS and SS	None	Laboratory practical in life sciences	Internship	10								(7,5)	
		P	P 5.2		WS and SS	None	Advanced seminar in life sciences	Seminar	1								(1,5)	

\*) Explanations for columns 1, 12 and 18 at the end of the table



Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
There are two options for choosing from the compulsory elective modules WP 1 to WP 57.																	
Option A:																	
From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement to Molecular Plant Sciences", "Supplement to Immunology", "Supplement to Cell Biology", "Supplement to Microbiology", "Supplement to Virology", "Supplement to Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry" three compulsory elective areas must be selected.																	
For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51																	
1. for the compulsory elective area "Supplement to Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,																	
2. for the compulsory elective area "Supplement to Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,																	
3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,																	
4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,																	
5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,																	
6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,																	
7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,																	
8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,																	
9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,																	
10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,																	
11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,																	
12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,																	
13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits,																	
14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,																	
15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,																	
16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,																	
17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,																	
18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,																	
19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.																	
Option B:																	
From the compulsory elective compulsory areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry" one compulsory elective area must be selected.																	

\*) Explanations for columns 1, 12 and 18 at the end of the table

		Modules				Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51</p> <ol style="list-style-type: none"><li>1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,</li><li>2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,</li><li>3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,</li><li>4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,</li><li>5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,</li><li>6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,</li><li>7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,</li><li>8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,</li><li>9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,</li><li>10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,</li><li>11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,</li><li>12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,</li><li>13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits,</li><li>14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,</li><li>15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,</li><li>16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,</li><li>17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,</li><li>18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,</li><li>19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.</li></ol> <p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry", "Focus on Physical Chemistry" and "Focus on Theoretical Chemistry" one compulsory elective area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57</p> <ol style="list-style-type: none"><li>1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52,</li><li>2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53,</li><li>3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54,</li><li>4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55,</li><li>5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56,</li><li>6. for the compulsory elective area "Focus on Theoretical Chemistry", the compulsory elective modules WP 32 and WP 57, must be selected.</li></ol>																	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology".</p> <p>Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology".</p> <p>Students who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	
	None	WP	WP 3 / II	Supplement Molecular and Cellular Genetics	SS												
		P	WP 3.2		SS	None	Genetic control of complex processes	Lecture	2								(3)
	None	WP	WP 4 / II	Supplement Genetics	SS												
		P	WP 4.2		SS	None	Advanced lecture in Genetics	Lecture	2								(3)
	None	WP	WP 5 / II	Supplement Human Biology	SS												
		P	WP 5.2		SS	None	Advanced lecture in Human Biology	Lecture	2								(3)
	None	WP	WP 6 / II	Supplement Molecular Plant Sciences	SS												
		P	WP 6.2		SS	None	Advanced lecture in Plant Sciences	Lecture	2								(3)
	None	WP	WP 7 / II	Supplement Immunology	SS												
		P	WP 7.2		SS	None	Advanced topics in Immunology	Lecture	2								(3)
(1.)	None	WP	WP 10	Supplement Advanced topics in molecular systems biology	SS					None	MP	Exam or Presentation or scientific protocol or oral examination	60-90 minutes or 10-20 minutes or approx. 2,500 words or 30-45 minutes	Grading		Any	3
		P	WP 10.1		SS	None	Advanced topics in molecular systems biology	Seminar	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(1.)	None	WP	WP 12	Supplement Advanced topics in structural biology	SS					None	MP	Exam or Presentation or scientific protocol or oral examination	60-90 minutes or 10-20 minutes or approx. 2.500 words or 30-45 minutes	Grading		Any	3
		P	WP 12.1		SS	None	Advanced topics in structural biology	Seminar	2								(3)
	None	WP	WP 27 / I	Focus Cell Biology I	SS												
A total of three compulsory elective courses must be selected from the compulsory elective courses WP 27.0.1 to WP 27.0.6.																	
		WP	WP 27.0.1		SS	None	Advanced lecture in Cell Biology	Lecture	2								(3)
		WP	WP 27.0.2		SS	None	Advanced Methods Lecture in cell biology	Lecture	2								(3)
		WP	WP 27.0.3		SS	None	Plant Cell and Developmental Biology	Lecture	2								(3)
	None	WP	WP 28 / I	Focus Microbiology I	SS												
		P	WP 28.1		SS	None	Advanced lecture in Microbiology	Lecture	2								(3)
<b>2nd semester</b>																	
(2.)	None	P	P 2 / I	Focus Biochemistry I	WS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
		P	P 2.1		WS	None	Life cycle of proteins	Lecture	2								(3)
		P	P 2.2		WS	None	Flow of genetic information	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	P	P 3	Fundamentals of data analysis	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	P 3.1		WS and SS	None	Practical bioinformatics	Lecture	1								(1,5)
		P	P 3.2		WS and SS	None	Exercise on Practical Bioinformatics	Exercise	1								(1,5)
		P	P 3.3		WS and SS	None	Statistics and Data Analysis	Lecture	1								(1,5)
		P	P 3.3		WS and SS	None	Exercise on Statistics and Data Analysis	Exercise	1								(1,5)
	None	P	P 4 / II	Focus Biochemistry II	WS and SS												
		P	P 4.2		WS and SS	None	Subject-specific Colloquium in biochemistry	Colloquium	2								(3)

There are two options for choosing from compulsory elective modules WP 1 to WP 57.

Option A:

From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement Molecular Plant Sciences", "Supplement Immunology", "Supplement Cell Biology", "Supplement Microbiology", "Supplement Virology", "Supplement Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry" three compulsory elective areas must be selected.

- For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51
1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,
  2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,
  3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,
  4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,
  5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
<p>6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,  7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,  8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,  9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,  10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,  11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,  12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,  13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39  compulsory elective modules totaling 15 ECTS credits,  14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,  15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,  16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,  17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,  18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,  19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51  must be selected.</p> <p>Option B:</p> <p>From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology",  "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology",  "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry",  "Supplemental Physical Chemistry" and "Supplemental Theoretical Chemistry"  one compulsory elective area must be selected.</p>																		

\*) Explanations for columns 1, 12 and 18 at the end of the table

Module examinations / module partial examinations																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>For this purpose, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51</p> <p>1. for the compulsory elective area "Supplement to Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,</p> <p>2. for the compulsory elective area "Supplement to Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,</p> <p>3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,</p> <p>4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,</p> <p>5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,</p> <p>6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,</p> <p>7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,</p> <p>8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,</p> <p>9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,</p> <p>10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,</p> <p>11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,</p> <p>12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,</p> <p>13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits,</p> <p>14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,</p> <p>15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,</p> <p>16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,</p> <p>17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,</p> <p>18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,</p> <p>19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.</p> <p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry", "Focus on Physical Chemistry", and "Focus on Theoretical Chemistry" one compulsory elective area must be selected.</p> <p>For this purpose, the following compulsory elective modules must be selected from WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57</p> <p>1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52,</p> <p>2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53,</p> <p>3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54,</p> <p>4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55,</p> <p>5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56,</p> <p>6. for the compulsory elective area "Focus on Theoretical Chemistry", the compulsory elective modules WP 32 and WP 57, must be selected.</p>																	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology".</p> <p>Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology".</p> <p>Students who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry".</p> <p>Students who choose the compulsory elective area "Supplemental Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	
(2.)	None	WP	WP 1	Supplement Molecular systems biology	WS					None	MP	Exam or oral exam	60-90 minutes or 30-45 minutes	Grading		Any	3
		P	WP 1.1		WS	None	Lecture from Molecular Systems Biology	Lecture	2								(3)
(2.)	None	WP	WP 2	Supplement Lecture from structural biology	WS					None	MP	Exam or oral exam	60-90 minutes or 30-45 minutes	Grading		Any	3
		P	WP 2.1		WS	None	Lecture from Structural Biology	Lecture	2								(3)
(2.)	None	WP	WP 3 / I	Supplement Molecular and Cellular Genetics	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 3.1		WS	None	Post-transcriptional Gene Regulation	Lecture	2								(3)
(2.)	None	WP	WP 4 / I	Supplement Genetics	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 4.1		WS	None	Lecture Fundamentals of genetics	Lecture	2								(3)
(2.)	None	WP	WP 5 / I	Supplement Human Biology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 5.1		WS	None	Lecture Fundamentals of Human Biology	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table



Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 6 / I	Supplement Molecular Plant Sciences	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 6.1		WS	None	Lecture Fundamentals of Plant Sciences	Lecture	2								(3)
(2.)	None	WP	WP 7 / I	Supplement Immunology	WS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 7.1		WS	None	Lecture from Immunology	Lecture	2								(3)
	None	WP	WP 8 / I	Focus Cell Biology - Internship	WS and SS												
(2.)		P	WP 8.1		WS and SS	None	Advanced seminar in Cell Biology	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
	None	WP	WP 9 / I	Focus Microbiology - Internship	WS and SS												
(2.)		P	WP 9.1		WS and SS	None	Advanced seminar in Microbiology	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)
(2.)	None	WP	WP 14	Supplement Molecular and Cellular Genetics - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 14.1		WS and SS	None	Research internship in Molecular and Cellular Genetics	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 15	Supplement Genetics - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 15.1		WS and SS	None	Research internship in Genetics	Internship	10								(9)
(2.)	None	WP	WP 16	Supplement Human Biology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 16.1		WS and SS	None	Research internship in Human Biology	Internship	10								(9)
(2.)	None	WP	WP 17	Supplement Molecular Plant Sciences - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 17.1		WS and SS	None	Research internship in Molecular Plant Sciences	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 18	Supplement Immunology - Practical training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 18.1		WS and SS	None	Research internship in Immunology	Internship	10								(9)
	None	WP	WP 19 / II	Supplement Cell Biology	WS												
A total of two compulsory elective courses must be selected from compulsory elective courses WP 19.0.1 to WP 19.0.6.																	
		WP	WP 19.0.4		WS	None	Lecture Fundamentals of Cell Biology	Lecture	2								(3)
		WP	WP 19.0.5		WS	None	Special lecture on cell biology	Lecture	2								(3)
		WP	WP 19.0.6		WS	None	Special lecture on methods of cell biology	Lecture	2								(3)
	None	WP	WP 20 / II	Supplement Microbiology	WS												
A total of two compulsory elective courses must be selected from the compulsory elective courses WP 20.0.1 to WP 20.0.3.																	
		WP	WP 20.0.2		WS	None	Special lecture in Microbiology	Lecture	2								(3)
		WP	WP 20.0.3		WS	None	Special lecture on methods in microbiology	Lecture	2								(3)
	None	WP	WP 21 / II	Supplement Virology	WS												
		P	WP 21.2		WS	None	Lecture in virology	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 22 / II	Supplement Evolutionary biology	WS												
		P	WP 22.2		WS	None	Lecture in evolutionary biology	Lecture	2								(3)
	None	WP	WP 23 / II	Supplement Neurobiology	WS												
		P	WP 23.2		WS	None	Lecture in neurobiology	Lecture	2								(3)
(2.)	None	WP	WP 27 / II	Focus Cell Biology I	WS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
A total of three compulsory elective courses must be selected from the compulsory elective courses WP 27.0.1 to WP 27.0.6.																	
		WP	WP 27.0.4		WS	None	Lecture Fundamentals of Cell Biology	Lecture	2								(3)
		WP	WP 27.0.5		WS	None	Special lecture in Cell Biology	Lecture	2								(3)
		WP	WP 27.0.6		WS	None	Special lecture on methods of cell biology	Lecture	2								(3)
(2.)	None	WP	WP 28 / II	Focus Microbiology I	WS					None	MP	Exam or oral exam	120-180 minutes or 60 minutes	Grading		Any	9
		P	WP 28.2		WS	None	Special lecture in Microbiology	Lecture	2								(3)
		P	WP 28.3		WS	None	Special lecture on methods in microbiology	Lecture	2								(3)
	None	WP	WP 29 / I	Focus Inorganic Chemistry - Practical	WS and SS												
(2.)		P	WP 29.1		WS and SS	None	Seminar in inorganic chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
	None	WP	WP 30 / I	Focus Organic Chemistry - Internship	WS and SS													
(2.)		P	WP 30.1		WS and SS	None	Seminar in Organic Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)	
	None	WP	WP 31 / I	Focus Physical chemistry - practical course	WS and SS													
(2.)		P	WP 31.1		WS and SS	None	Seminar in Physical Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)	
	None	WP	WP 32 / I	Focus Theoretical Chemistry - Internship	WS and SS													
(2.)		P	WP 32.1		WS and SS	None	Seminar in Theoretical Chemistry	Seminar	2	None	MTP	Presentation or Oral examination	10-20 minutes or 30-45 minutes	Grading		Any	(3)	
(2.)	None	WP	WP 38	Introduction to Programming	WS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	9	
		P	WP 38.1		WS	None	Lecture Introduction to Programming	Lecture	4								(6)	
		P	WP 38.2		WS	None	Exercise on Introduction to Programming	Exercise	2								(3)	
(2.)	None	WP	WP 39	Operating Systems	WS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6	
		P	WP 39.1		WS	None	Lecture Operating Systems	Lecture	3								(3)	
		P	WP 39.2		WS	None	Exercise on Operating Systems	Exercise	2								(3)	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(2.)	None	WP	WP 52	Focus Cell Biology II	WS and SS					None	MP	Presentation or Scientific protocol	20 minutes or approx. 3,500 words	passed/ failed		Any	6
		P	WP 52.1		WS and SS	None	Subject-specific Colloquium in Cell Biology	Colloquium	2								(3)
		P	WP 52.2		WS and SS	None	Cell Biology Seminar	Seminar	2								(3)
(2.)	None	WP	WP 53	Focus Microbiology II	WS and SS					None	MP	Presentation or Scientific protocol	20 minutes or approx. 3,500 words	passed/ failed		Any	6
		P	WP 53.1		WS and SS	None	Subject-specific Colloquium in Microbiology	Colloquium	2								(3)
		P	WP 53.2		WS and SS	None	Microbiology Seminar	Seminar	2								(3)
<b>3rd semester</b>																	
(3.)	None	P	P 4 / I	Focus Biochemistry II	SS					None	MP	Presentation or Scientific protocol	30 minutes or approx. 3,500 words	passed/ failed		Any	6
		P	P 4.1		SS	None	Subject-specific Seminar in Biochemistry	Seminar	2								(3)
There are two options for choosing from compulsory elective modules WP 1 to WP 57.																	
Option A:																	
From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplement to Molecular Plant Sciences", "Supplement to Immunology", "Supplement to Cell Biology", "Supplement to Microbiology", "Supplement to Virology", "Supplement to Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry" three compulsory elective areas must be selected.																	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules				Courses						Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>To this end, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51</p> <p>1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,</p> <p>2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,</p> <p>3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,</p> <p>4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,</p> <p>5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,</p> <p>6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,</p> <p>7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,</p> <p>8. for the compulsory elective area "Supplemental Cell Biology", the compulsory elective modules WP 19 and WP 33,</p> <p>9. for the compulsory elective area "Supplement Microbiology", the compulsory elective modules WP 20 and WP 34,</p> <p>10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35,</p> <p>11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36,</p> <p>12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37,</p> <p>13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits,</p> <p>14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41,</p> <p>15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43,</p> <p>16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45,</p> <p>17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47,</p> <p>18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49,</p> <p>19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.</p> <p>Option B:</p> <p>From the compulsory elective areas "Supplement Molecular Systems Biology", "Supplement Structural Biology", "Supplement Molecular and Cellular Genetics", "Supplement Genetics", "Supplement Human Biology", "Supplemental Molecular Plant Sciences", "Supplemental Immunology", "Supplemental Cell Biology", "Supplemental Microbiology", "Supplemental Virology", "Supplemental Evolutionary Biology", "Supplement in Neurobiology", "Supplement in Computer Science", "Subject-Specific Supplements in Biochemistry", "Supplement in Biological Chemistry", "Supplement in Inorganic Chemistry", "Supplement in Organic Chemistry", "Supplemental Physical Chemistry", and "Supplemental Theoretical Chemistry" one compulsory elective area must be selected.</p> <p>To this end, the following compulsory elective modules must be selected from WP 1 to WP 7, WP 10 to WP 26, and WP 33 to WP 51</p> <p>1. for the compulsory elective area "Supplement Molecular Systems Biology", the compulsory elective modules WP 1, WP 10, and WP 11,</p> <p>2. for the compulsory elective area "Supplement Structural Biology", the compulsory elective modules WP 2, WP 12, and WP 13,</p> <p>3. for the compulsory elective area "Supplement Molecular and Cellular Genetics", the compulsory elective modules WP 3 and WP 14,</p> <p>4. for the compulsory elective area "Supplement Genetics", the compulsory elective modules WP 4 and WP 15,</p> <p>5. for the compulsory elective area "Supplemental Human Biology", the compulsory elective modules WP 5 and WP 16,</p> <p>6. for the compulsory elective area "Supplemental Molecular Plant Sciences", the compulsory elective modules WP 6 and WP 17,</p> <p>7. for the compulsory elective area "Supplemental Immunology", the compulsory elective modules WP 7 and WP 18,</p>																	

\*) Explanations for columns 1, 12 and 18 at the end of the table

				Modules		Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p>8. for the compulsory elective area "Supplemental Cell Biology", compulsory elective modules WP 19 and WP 33, 9. for the compulsory elective area "Supplementary Microbiology", the compulsory elective modules WP 20 and WP 34, 10. for the compulsory elective area "Supplemental Virology", the compulsory elective modules WP 21 and WP 35, 11. for the compulsory elective area "Supplemental Evolutionary Biology", the compulsory elective modules WP 22 and WP 36, 12. for the compulsory elective area "Supplemental Neurobiology", the compulsory elective modules WP 23 and WP 37, 13. for the compulsory elective area "Supplemental Computer Science", the compulsory elective modules WP 24 to WP 26, WP 38, and WP 39 compulsory elective modules totaling 15 ECTS credits, 14. for the compulsory elective area "Subject-specific supplements in biochemistry", the compulsory elective modules WP 40 and WP 41, 15. for the compulsory elective area "Supplemental Biological Chemistry", the compulsory elective modules WP 42 and WP 43, 16. for the compulsory elective area "Supplemental Inorganic Chemistry", the compulsory elective modules WP 44 and WP 45, 17. for the compulsory elective area "Supplement to Organic Chemistry", the compulsory elective modules WP 46 and WP 47, 18. for the compulsory elective area "Supplemental Physical Chemistry", the compulsory elective modules WP 48 and WP 49, 19. for the compulsory elective area "Supplement to Theoretical Chemistry", the compulsory elective modules WP 50 and WP 51 must be selected.</p> <p>From the compulsory elective areas "Focus on Cell Biology", "Focus on Microbiology", "Focus on Inorganic Chemistry", "Focus on Organic Chemistry", "Focus on Physical Chemistry", and "Focus on Theoretical Chemistry" one compulsory elective area must be selected.</p> <p>To this end, the following must be selected from the compulsory elective modules WP 8, WP 9, WP 27 to WP 32, and WP 52 to WP 57 1. for the compulsory elective area "Focus on Cell Biology", the compulsory elective modules WP 8, WP 27, and WP 52, 2. for the compulsory elective area "Focus on Microbiology", the compulsory elective modules WP 9, WP 28, and WP 53, 3. for the compulsory elective area "Focus on Inorganic Chemistry", the compulsory elective modules WP 29 and WP 54, 4. for the compulsory elective area "Focus on Organic Chemistry", the compulsory elective modules WP 30 and WP 55, 5. for the compulsory elective area "Focus on Physical Chemistry", the compulsory elective modules WP 31 and WP 56, 6. for the compulsory elective area "Focus on Theoretical Chemistry", the compulsory elective modules WP 32 and WP 57, must be selected.</p> <p>Those who choose the compulsory elective area "Supplement to Cell Biology" may not choose the compulsory elective area "Focus on Cell Biology". Those who choose the compulsory elective area "Supplement Microbiology" may not choose the compulsory elective area "Focus Microbiology". Students who choose the compulsory elective area "Supplemental Inorganic Chemistry" may not choose the compulsory elective area "Focus on Inorganic Chemistry". Students who choose the compulsory elective area "Supplemental Organic Chemistry" may not choose the compulsory elective area "Focus on Organic Chemistry". Students who choose the compulsory elective area "Supplemental Physical Chemistry" may not choose the compulsory elective area "Focus on Physical Chemistry". Students who choose the compulsory elective area "Supplemental Theoretical Chemistry" may not choose the compulsory elective area "Focus on Theoretical Chemistry".</p>																	

\*) Explanations for columns 1, 12 and 18 at the end of the table



Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 8 / II	Focus Cell Biology - Internship	WS and SS												15
(3.)		P	WP 8.2		WS and SS	None	Advanced research internship in Cell Biology	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)
	None	WP	WP 9 / II	Focus Microbiology - Internship	WS and SS												15
(3.)		P	WP 9.2		WS and SS	None	Advanced research internship in microbiology	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)
(3.)	Successful participation in WP 1	WP	WP 11	Supplement Molecular Systems Biology - Practical Course	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 11.1		WS and SS	None	Research internship in molecular systems biology	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	Successful participation in WP 2	WP	WP 13	Supplement Structural Biology - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 13.1		WS and SS	None	Research internship in Structural Biology	Internship	10								(9)
(3.)	None	WP	WP 19 / I	Supplement Cell Biology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
A total of two compulsory elective courses must be selected from compulsory elective courses WP 19.0.1 to WP 19.0.6.																	
		WP	WP 19.0.1		SS	None	Advanced lecture in Cell Biology	Lecture	2								(3)
		WP	WP 19.0.2		SS	None	Advanced Methods Lecture in cell biology	Lecture	2								(3)
		WP	WP 19.0.3		SS	None	Plant Cell and Developmental Biology	Lecture	2								(3)
(3.)	None	WP	WP 20 / I	Supplement Microbiology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
A total of two compulsory elective courses must be selected from the compulsory elective courses WP 20.0.1 to WP 20.0.3.																	
		WP	WP 20.0.1		SS	None	Advanced lecture in Microbiology	Lecture	2								(3)
(3.)	None	WP	WP 21 / I	Supplement Virology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 21.1		SS	None	Current topics in virology	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 22 / I	Supplement Evolutionary Biology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 22.1		SS	None	Current topics in evolutionary biology	Lecture	2								(3)
(3.)	None	WP	WP 23 / I	Supplement Neurobiology	SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
		P	WP 23.1		SS	None	Current topics in neurobiology	Lecture	2								(3)
(3.)	None	WP	WP 24	Introduction to Computer Science: Systems and Applications	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 24.1		SS	None	Lecture Introduction to Computer Science: Systems and Applications	Lecture	2								(3)
		P	WP 24.2		SS	None	Exercise for Introduction to Computer Science: Systems and Applications	Exercise	3								(3)
(3.)	None	WP	WP 25	Computer Architecture	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 25.1		SS	None	Lecture Computer Architecture	Lecture	3								(3)
		P	WP 25.2		SS	None	Exercise on Computer Architecture	Exercise	2								(3)
(3.)	None	WP	WP 26	Programming and Modeling	SS					None	MP	Exam or oral exam	90-180 minutes or 15-30 minutes	Grading		Any	6
		P	WP 26.1		SS	None	Lecture Programming and Modeling	Lecture	2								(2)
		P	WP 26.2		SS	None	Exercise on Programming and modeling	Exercise	3								(4)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
	None	WP	WP 29 / II	Focus Inorganic Chemistry - Practical	WS and SS												15	
(3.)		P	WP 29.2		WS and SS	None	Advanced research practical in inorganic chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
	None	WP	WP 30 / II	Focus Organic Chemistry - Internship	WS and SS												15	
(3.)		P	WP 30.2		WS and SS	None	Advanced research practical in organic chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	
	None	WP	WP 31 / II	Focus Physical chemistry - practical course	WS and SS												15	
(3.)		P	WP 31.2		WS and SS	None	Advanced research internship in physical chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
	None	WP	WP 32 / II	Focus Theoretical Chemistry - Internship	WS and SS												15
(3.)		P	WP 32.2		WS and SS	None	Advanced research internship in theoretical chemistry	Internship	16	None	MTP	Internship assessment	Internship duration	Grading		Any	(12)
(3.)	None	WP	WP 33	Supplement Cell Biology - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 33.1		WS and SS	None	Research Practicum in Cell Biology -	Internship	10								(9)
(3.)	None	WP	WP 34	Supplement Microbiology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 34.1		WS and SS	None	Research internship in Microbiology	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
(3.)	None	WP	WP 35	Supplement Virology - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 35.1		WS and SS	None	Research internship in virology	Internship	10								(9)	
(3.)	None	WP	WP 36	Supplement Evolutionary Biology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 36.1		WS and SS	None	Research internship in evolutionary biology	Internship	10								(9)	
(3.)	None	WP	WP 37	Supplement Neurobiology - Internship	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 37.1		WS and SS	None	Research internship in neurobiology	Internship	10								(9)	
(3.)	None	WP	WP 40	Subject-specific supplement to Biochemistry - practical training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 40.1		WS and SS	None	Internship in the subject-specific supplement in biochemistry	Internship	10								(9)	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*	
(3.)	None	WP	WP 41	Subject-specific Supplement to Biochemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6	
		P	WP 41.1		WS and SS	None	Lecture on the subject-specific supplement to biochemistry	Lecture	2								(3)	
		P	WP 41.2		WS and SS	None	Advanced topics in the subject-specific supplement to biochemistry	Lecture	2								(3)	
(3.)	None	WP	WP 42	Supplement Biological Chemistry - Practical Training	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 42.1		WS and SS	None	Research Internship in Biological Chemistry	Internship	10								(9)	
(3.)	None	WP	WP 43	Supplement Biological Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6	
		P	WP 43.1		WS and SS	None	Basics of Cloning, Genomics, and Proteomics	Lecture	2								(3)	
		P	WP 43.2		WS and SS	None	Coenzymes and Biosynthesis	Lecture	2								(3)	
(3.)	None	WP	WP 44	Supplement Inorganic Chemistry Laboratory	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9	
		P	WP 44.1		WS and SS	None	Research internship in Inorganic Chemistry	Internship	10								(9)	

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 45	Supplement Inorganic Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 45.0.1 to WP 45.0.5.																	
		WP	WP 45.0.1		WS and SS	None	Current Inorganic Molecular Chemistry	Lecture	2								(3)
		WP	WP 45.0.2		WS and SS	None	Current Solid State Chemistry	Lecture	2								(3)
		WP	WP 45.0.3		WS and SS	None	Current Coordination Chemistry	Lecture	2								(3)
		WP	WP 45.0.4		WS and SS	None	Spectroscopic Methods in Inorganic Chemistry	Lecture	2								(3)
		WP	WP 45.0.5		WS and SS	None	Special lecture on inorganic chemistry	Lecture	2								(3)
(3.)	None	WP	WP 46	Supplement Organic Chemistry Practicum	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 46.1		WS and SS	None	Research internship in organic chemistry	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table



Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 47	Supplement Organic Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 47.0.1 to WP 47.0.9.																	
		WP	WP 47.0.1		WS and SS	None	Physical organic chemistry	Lecture	2								(3)
		WP	WP 47.0.2		WS and SS	None	Heterocyclic and natural product chemistry	Lecture	2								(3)
		WP	WP 47.0.3		WS and SS	None	Modern synthesis methods	Lecture	2								(3)
		WP	WP 47.0.4		WS and SS	None	Synthesis strategies	Lecture	2								(3)
		WP	WP 47.0.5		WS and SS	None	Sugar chemistry	Lecture	2								(3)
		WP	WP 47.0.6		WS and SS	None	Reactive intermediate stages	Lecture	2								(3)
		WP	WP 47.0.7		WS and SS	None	Lecture in Biological Chemistry	Lecture	2								(3)
		WP	WP 47.0.8		WS and SS	None	Advanced topics in biological chemistry	Lecture	2								(3)
		WP	WP 47.0.9		WS and SS	None	Special lecture on organic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

1	Modules					Courses				Module examinations / module partial examinations							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 48	Supplement Physical Chemistry - Practical	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 48.1		WS and SS	None	Research internship in Physical Chemistry	Internship	10								(9)
(3.)	None	WP	WP 49	Supplement Physical Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 49.0.1 to WP 49.0.11.																	
		WP	WP 49.0.1		WS and SS	None	Energy conversion	Lecture	2								(3)
		WP	WP 49.0.2		WS and SS	None	Electrochemistry	Lecture	2								(3)
		WP	WP 49.0.3		WS and SS	None	Electron microscopy	Lecture	2								(3)
		WP	WP 49.0.4		WS and SS	None	Optical microscopy methods	Lecture	2								(3)
		WP	WP 49.0.5		WS and SS	None	Solid-state spectroscopy	Lecture	2								(3)
		WP	WP 49.0.6		WS and SS	None	Fluorescence spectroscopy	Lecture	2								(3)
		WP	WP 49.0.7		WS and SS	None	Laser spectroscopy	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
		WP	WP 49.0.8		WS and SS	None	Heterogeneous Catalysis	Lecture	2								(3)
		WP	WP 49.0.9		WS and SS	None	Surface physics	Lecture	2								(3)
		WP	WP 49.0.10		WS and SS	None	Nanoscience	Lecture	2								(3)
		WP	WP 49.0.11		WS and SS	None	Special lecture on physical chemistry	Lecture	2								(3)
(3.)	None	WP	WP 50	Supplement Theoretical Chemistry Laboratory	WS and SS					None	MP	Internship assessment	Internship duration	Grading		Any	9
		P	WP 50.1		WS and SS	None	Research internship in Theoretical Chemistry	Internship	10								(9)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 51	Supplement Theoretical Chemistry	WS and SS					None	MP	Exam or oral exam	90-120 minutes or 45 minutes	Grading		Any	6
Two compulsory elective courses must be selected from the compulsory elective courses WP 51.0.1 to WP 51.0.6.																	
		WP	WP 51.0.1		WS and SS	None	Molecular dynamics	Lecture	2								(3)
		WP	WP 51.0.2		WS and SS	None	Quantum dynamics	Lecture	2								(3)
		WP	WP 51.0.3		WS and SS	None	Density functional theory	Lecture	2								(3)
		WP	WP 51.0.4		WS and SS	None	Theoretical solid state chemistry	Lecture	2								(3)
		WP	WP 51.0.5		WS and SS	None	Linearly scaling quantum chemical methods	Lecture	2								(3)
		WP	WP 51.0.6		WS and SS	None	Special lecture on theoretical chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 54	Focus Inorganic Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 54.1		WS and SS	None	Subject-specific colloquium in inorganic chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 54.2.1 to WP 54.2.5. At least two of the compulsory elective courses WP 54.2.1 to WP 54.2.3 must be selected.																	
		WP	WP 54.2.1		WS and SS	None	Current Inorganic Molecular Chemistry	Lecture	2								(3)
		WP	WP 54.2.2		WS and SS	None	Current Solid State Chemistry	Lecture	2								(3)
		WP	WP 54.2.3		WS and SS	None	Current Coordination Chemistry	Lecture	2								(3)
		WP	WP 54.2.4		WS and SS	None	Spectroscopic Methods in Inorganic Chemistry	Lecture	2								(3)
		WP	WP 54.2.5		WS and SS	None	Special lecture on inorganic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 55	Focus Organic Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 55.1		WS and SS	None	Subject-specific colloquium in organic chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 55.2.1 to WP 55.2.9.																	
		WP	WP 55.2.1		WS and SS	None	Physical organic chemistry	Lecture	2								(3)
		WP	WP 55.2.2		WS and SS	None	Heterocyclic and natural product chemistry	Lecture	2								(3)
		WP	WP 55.2.3		WS and SS	None	Modern synthesis methods	Lecture	2								(3)
		WP	WP 55.2.4		WS and SS	None	Synthesis strategies	Lecture	2								(3)
		WP	WP 55.2.5		WS and SS	None	Sugar chemistry	Lecture	2								(3)
		WP	WP 55.2.6		WS and SS	None	Reactive intermediate stages	Lecture	2								(3)
		WP	WP 55.2.7		WS and SS	None	Lecture in Biological Chemistry	Lecture	2								(3)
		WP	WP 55.2.8		WS and SS	None	Advanced topics in biological chemistry	Lecture	2								(3)
		WP	WP 55.2.9		WS and SS	None	Special lecture on organic chemistry	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
(3.)	None	WP	WP 56	Focus Physical Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 56.1		WS and SS	None	Subject-specific colloquium in physical chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 56.2.1 to WP 56.2.11.																	
		WP	WP 56.2.1		WS and SS	None	Energy conversion	Lecture	2								(3)
		WP	WP 56.2.2		WS and SS	None	Electrochemistry	Lecture	2								(3)
		WP	WP 56.2.3		WS and SS	None	Electron microscopy	Lecture	2								(3)
		WP	WP 56.2.4		WS and SS	None	Optical microscopy methods	Lecture	2								(3)
		WP	WP 56.2.5		WS and SS	None	Solid-state spectroscopy	Lecture	2								(3)
		WP	WP 56.2.6		WS and SS	None	Fluorescence spectroscopy	Lecture	2								(3)
		WP	WP 56.2.7		WS and SS	None	Laser spectroscopy	Lecture	2								(3)
		WP	WP 56.2.8		WS and SS	None	Heterogeneous Catalysis	Lecture	2								(3)
		WP	WP 56.2.9		WS and SS	None	Surface physics	Lecture	2								(3)
		WP	WP 56.2.10		WS and SS	None	Nanoscience	Lecture	2								(3)

\*) Explanations for columns 1, 12 and 18 at the end of the table

Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
		WP	WP 56.2.11		WS and SS	None	Special lecture on physical chemistry	Lecture	2								(3)
(3.)	None	WP	WP 57	Focus Theoretical Chemistry	WS and SS					None	MP	Exam or oral exam	120-180 minutes or 60-90 minutes	Grading		Any	15
		P	WP 57.1		WS and SS	None	Subject-specific colloquium in theoretical chemistry	Colloquium	3								(6)
Three compulsory elective courses must be selected from the compulsory elective courses WP 57.2.1 to WP 57.2.6.																	
		WP	WP 57.2.1		WS and SS	None	Molecular dynamics	Lecture	2								(3)
		WP	WP 57.2.2		WS and SS	None	Quantum dynamics	Lecture	2								(3)
		WP	WP 57.2.3		WS and SS	None	Density functional theory	Lecture	2								(3)
		WP	WP 57.2.4		WS and SS	None	Theoretical solid state chemistry	Lecture	2								(3)
		WP	WP 57.2.5		WS and SS	None	Linearly scaling quantum chemical methods	Lecture	2								(3)
		WP	WP 57.2.6		WS and SS	None	Special lecture on theoretical chemistry	Lecture	2								(3)
4th semester																	
(4.)	successful participation in P 1 to P 3 and P 5	P	P 6	Final module	WS and SS					None	MP, MAA	Master's thesis	26 weeks, approx. 30,000 words	Grading		once, next date	30
		P	P 6.1		WS and SS	None	Master's thesis	Master's thesis									(30)

\*) Explanations for columns 1, 12 and 18 at the end of the table



Modules						Courses				Module examinations / module partial examinations							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Semester	Admission requirements	Compulsory (P) / compulsory elective (WP)	Abbreviation of the module or course	Module name	offered in the	Admission requirements	Name of the course	Type of instruction	SWS	Admission requirements	Type of examination*	Examination format	Exam duration or scope	Grade or pass / fail	Grade weight	Repeatability	ECTS credits*
<p><b>Explanations</b></p> <p><u>Regarding column 1:</u></p> <p>Numbers in parentheses are recommendations; numbers not in parentheses specify a binding regulatory deadline (§ 11).</p> <p><u>Regarding column 12:</u></p> <p>MP = module examination / MTP = sub-module examination / MAA = master's thesis</p> <p><u>Regarding column 18:</u></p> <p>ECTS credits not enclosed in brackets are awarded upon passing the corresponding module (§ 10 (4) sentence 2). ECTS credits enclosed in brackets are used for calculation purposes only.</p>																	

\*) Explanations for columns 1, 12 and 18 at the end of the table