Degree program and examination regulations for the Bachelor's degree program in Physics and the Master's degree program in Physics at the Faculty of Sciences at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – BMPO/Physics –

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last amended by the statutes of
August 7, 2024

Based on Section 9 (1) in conjunction with the currently valid versions of Section 80 (1)(1), section 84 (2)(1), Section 86 (3)(4), Section 88 (9), Section 90 (1)(2) and Section 96 (3)(1) Bavarian Higher Education Innovation Act dated August 5, 2022 (**BayHIG**), Friedrich-Alexander-Universität Erlangen-Nürnberg enacts the following degree program and examination regulations:

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Preamble

[1]Within the context of the Bachelor's and Master's degree programs in Physics, FAU collaborates with Universität Regensburg to offer special teaching units as part of a research specialization. [2]The research specialization is offered to particularly talented and motivated students who would like to pursue a career in research. [3]The research specialization aims to introduce students to research at an early stage in their education. [4]Students can select the research specialization after completing the third semester of the Bachelor's degree program or at the beginning of the Master's degree program and special requirements for admission must be met; further provisions are stipulated in Sections 39 and 50.

Part I: General Provisions

Section 1 Scope, Purpose of the Bachelor's and Master's Examination

(1) These degree program and examination regulations govern the examinations for the Bachelor's and Master's degree programs in Physics at the Faculty of Sciences at FAU resulting in the degrees Bachelor of Science and Master of Science.

(2) [1]The Bachelor of Science is an undergraduate degree that qualifies graduates for professional work. [2]The Bachelor's examination serves to determine whether students grasp the basic contexts in their field and have acquired the necessary expertise for taking a subsequent Master's degree program or making an early transition to professional practice.

(3) [1]The Master of Science is a postgraduate degree that qualifies graduates for further research as well as professional work; the Master's degree program is research-oriented. [2]The Master's examination serves to determine whether students are capable of working independently according to scientific methods,and of developing these further, and have acquired the necessary expertise for taking a subsequent doctoral degree program or making the transition to professional practice.

Section 2 Degrees

(1) Passing the examinations results in the following degrees, depending on the type of degree program:

1. The degree of Bachelor of Science (abbreviation: BSc) for passing the Bachelor's examination
2. The degree of Master of Science (abbreviation: MSc) for passing the Master's examination.

(2) The academic degrees may also be used with the addition "(FAU Erlangen-Nürnberg)".

Section 3 Structure of the Bachelor's Degree Program and Examinations, Standard Duration of Study, Start of Degree Program, Teaching and Examination Language

(1) [1]Students must take a preliminary examination (Grundlagen- und Orientierungsprüfung, GOP) covering the foundations of the Bachelor's degree program by the end of the second semester (orientation phase). [2]The remainder of the Bachelor's degree program (Bachelor's phase) shall comprise the compulsory examinations of the next four semesters, including the module Bachelor's thesis and colloquium. [3]In the Bachelor's phase, students who meet the requirements can select the research specialization named in the preamble; further details are stipulated in Section 35 in conjunction with **Appendix 3**. [4]A total of 180 ECTS credits shall be awarded for completing the Bachelor's degree program.

(2) [1]The standard duration of the Bachelor's degree program, which includes the examinations and work on the Bachelor's thesis, shall be six semesters; Section 8 applies for the degree program and examination deadlines. [2]The specific contents of the degree program and the examination contents are specified in **Appendix 2** and **3** and are defined in more detail in the module descriptions of the degree program in the module handbook.

(3) The Bachelor's degree program may only be started in the winter semester.

(4) [1]The teaching and examination language of the Bachelor's degree program in Physics is German. [2]Individual teaching units and examinations in elective and key qualification modules and the research specialization may be held in English; further details are stipulated in the module handbook. [3]In any case of uncertainty, the examination language shall be the same as the teaching language.

Section 4 Structure of the Master's Degree Program and Examinations, Standard Duration of Study, Start of Degree Program, Teaching and Examination Language

(1) [1]The Master's degree program builds on the contents of the Bachelor's program; it is more research-oriented. [2]By selecting the research specialization detailed in the preamble, students can increase their research orientation.

(2) [1]The Master's degree program consists of a specialization phase lasting two semesters and following on from the Bachelor's program, followed by a research phase in the third and fourth semesters. [2]In the research phase, students carry out work on a research project that includes both further specialization and the Master's thesis module, including the Master's colloquium. [3]Students need to achieve a total of 120 ECTS credits to complete a Master's degree, including all required module examinations and the modules of the research phase and the Master's thesis module, including the Master's colloquium.

(3) Depending on the option chosen by the student, the Master's degree program can be taken as the regular variant or as the research specialization as specified in Section 49.

(4) [1]The standard duration of the Master's degree program, which includes the examinations and work on the Master's thesis, shall be four semesters; Section 8 applies for the degree program and examination deadlines. [2]The specific contents of the degree program and the examination contents are specified in **Appendix 4 and 5** and are defined in more detail in the module descriptions of the degree program in the module handbook.

(5) The Master's degree program may be started in the winter semester or in the summer semester.

(6) [1]The teaching and examination language of the Master's degree program in Physics is English. [2]Individual teaching units and examinations in the elective modules may be taken in German and included in the Master's examination; further details are stipulated in the module handbook. [3]In any case of uncertainty, the examination language shall be the same as the teaching language.

Section 5 ECTS Credits

(1) [1]The degree programs and examinations are based on the European Credit Transfer System (ECTS). [2]Students must study an average of 30 ECTS credits in each semester. [3]A single ECTS credit corresponds to a workload of 30 hours.

(2) [1]ECTS credits serve as a system to categorize, calculate and confirm the amount of work a student has invested. [2]They are a quantitative indicator of a student's workload.

Section 6 Modules and Credits, Voluntary Intermediate Examinations

(1) [1]The degree program consists of modules for which students are awarded ECTS credits. [2]One module is a chronologically connected and self-contained teaching and learning unit, the content of which can be tested in an examination.

(2) [1]The modules are completed with a module examination. [2]This examination shall as a rule consist of one examination achievement or one course achievement. [3]In exceptional cases, this examination can also consist of several parts or partial examinations or a combination of examination and/or course achievements if the subject warrants it. [4]Ungraded course achievements consisting of several parts and/or course achievements which can be repeated an unlimited number of times shall not count as examinations consisting of several parts as defined in sentence 3. [5]ECTS credits are only awarded for the successful completion of modules determined on the basis of a module examination testing the student's own achievements. [6]As a rule, examinations during the course of the degree program are held during the lecture period or after the last lectures and seminars of a module have been held before the start of the lecture period of the following semester.

(3) [1]Examinations (examination achievements and course achievements) measure the students' performance. [2]They may be written, oral, electronic, use electronic communication devices or be in a different form. [3]In the event of invigilated remote electronic examinations, the Bavarian regulation for testing remote examinations (**BayFEV**) and the FAU regulations on remote examinations on the basis of the Bavarian regulations for testing remote examinations (**BayFEV**) – **EFernPO** – shall be complied with. [4]Examination achievements and partial examinations are graded. [5]Course achievements are graded pass or fail.

(4) [1]In addition to the module examinations, voluntary intermediate examinations (e.g. tutorial achievements or short tests) may be offered during courses as a way of measuring the standard of performance. [2]More detailed information, including the number, type and scope of these examinations, is given in the module handbook. [3]If a student chooses to use the option detailed in sentence 1, these results shall be taken into account when assessing the module and when determining the grade for the module in the case of modules which are graded. [4]Intermediate examination achievements may improve the grade for a module examination or partial examination by a maximum of 0.7; a grade may not be made worse.

(5) Enrollment at FAU is a requirement for participation in module examinations according to (2)(1).

Section 7 Compulsory Attendance

(1) [1]For teaching units, which are marked accordingly in the respective module description, in which the qualification goal can only be achieved by regular attendance, compulsory attendance can be made a requirement for admission to the module examination or for obtaining the course achievement. [2]If attendance of the individual student is required for all participants to obtain the subject-specific skills, if the individual student obtaining such skills depends on the attendance of the other participants, or if subject-specific skills can only be obtained by being present at a particular place, or if participation is required for safety reasons, it is permissible to introduce an obligation to attend.

(2) [1]Regular attendance is defined as missing no more than 15% of instruction time in any given teaching unit, whereby the reasons for the absence are irrelevant. [2]If between 15% and 30% of instruction time has been missed, the lecturer can offer the student the option to obtain a skills-orientated substitute achievement fulfilling the requirement of regular attendance. If no such substitute achievements are offered or the substitute achievements offered are not obtained by the student, attendance is not considered to have been regular. [3]If more than 30% of instruction time is missed in total, the student must take the teaching unit again. [4]Any positions after the decimal point in the percentage of instruction time missed shall be rounded for the benefit of the student.

(3) [1]Paragraph 2 notwithstanding, in the context of laboratory courses, attendance is only considered to have been regular if all teaching units have been attended. [2]Appropriate substitute achievements fulfilling the requirement of regular attendance shall be offered in the case of credibly shown periods of absence due to reasons beyond the student's control of up to and including 15% of instruction time. [3]If more than 15% of instruction time is missed, the student must take the teaching unit again. [4]Any positions after the decimal point in the percentage of instruction time missed shall be rounded for the benefit of the student.

(4) [1]Attendance is checked in the individual teaching units, provided these are held face to face, by means of an attendance list in which students must enter their name and signature, or in a comparable manner. [2]If teaching units are held online, teaching staff shall record attendance by taking a register of the names of all those attending. [3]Teaching staff shall compare the names on the registration list to see whether they correspond with the names used by the students attending the teaching unit. [4]If students use a pseudonym during an online teaching unit with compulsory attendance, they must inform the member of teaching staff of their real name in order to allow a comparison to be made.

Section 8 Examination Deadlines, Failure to Observe Deadlines

(1) [1]Examinations shall be sat in such a timely manner as to allow students to obtain 30 ECTS credits in the preliminary examination (GOP), 180 ECTS credits in the Bachelor's examination and 120 ECTS credits in the Master's examination by the scheduled deadlines. [2]Deadlines shall be the second semester of the Bachelor's degree program for the GOP or the last semester of the respective standard duration of study for the Bachelor's or Master's examination. [3]The deadline according to sentence 2 may be exceeded (extended deadline).

1. GOP – by one semester
2. Bachelor's examination – by two semesters

3. Master's examination – by twp semesters.
[4]An examination shall be considered to have been sat and failed at the final attempt if the number of ECTS credits stipulated in sentence 1 was not obtained within the extended deadline according to sentence 3, unless the reasons for this are beyond the student's control.

(2) The deadline set forth in paragraph 1 shall be extended by claiming the periods of protection according to the current version of the law protecting mothers at work, in education and whilst studying (Maternity Protection Act, Mutterschutzgesetz – **MuSchG**) in the version published on May 23, 2017 (BGBl I S. 1288 [German Federal Law Gazette I p. 1228]), according to the periods set forth in the current version of the Parental Allowance and Parental Leave Act (Bundeselterngeld- und Elternzeitgesetz – **BEEG**) of December 5, 2006 (BGBl I S. 2748 [German Federal Law Gazette I p. 2748]), and according to periods of time spent providing care in the sense of Section 7 (3) of the current version of the Caregiver Leave Act (Pflegezeitgesetz – **PflegeZG**) of May 28, 2008 (BGBl I S. 874, 896 [German Federal Law Gazette I p. 874, 896]) for a close family member who requires care in the sense of the current version of SGB XI (**German Social Security Code XI**) of May26, 1994 (BGBl I S. 1014, 1015 [German Federal Law Gazette I p. 1014, 1015]).

(3) [1]The reasons according to paragraph 1 (4) and paragraph 2 shall be explained in writing and shown credibly to the Examinations Committee without delay. [2]If the reasons are acknowledged, the examination shall be sat at the soonest possible time; previous examination and course achievements shall be accredited. [3]Section 12 (4) sentences 2 to 3 shall apply.

Section 9 Examinations Committee

(1) [1]The Examinations Committee shall organize and carry out the examinations for the Bachelor's and Master's degree programs. [2]The Examinations Committee shall have five members that are professors at the Department of Physics at the Faculty of Sciences; they shall be elected by the Faculty Council. [3]The Faculty Council shall elect one of the members as the chairperson and shall appoint a deputy to act in the event of the chairperson's absence. [4]The term of office of the members shall be three years. [5]Re-election is permitted.

(2) The chairperson may transfer tasks within their responsibility to a member of the Examinations Committee.

(3) [1]The Examinations Committee shall be tasked with carrying out examination procedures, especially the planning and organization of examinations. [2]Its duties include ensuring that the provisions of these degree program and examination regulations are observed. [3]With the exception of the examinations themselves and their assessment, which the examiners are responsible for, all decisions shall be taken by the Examinations Committee unless they have been transferred to the Examinations Office. [4]The Examinations Committee shall check delegated decisions if requested to do so and shall verify that examinations have been legitimately assessed. [5]It shall regularly report to the relevant committees within the department on the development of the examinations and the study periods and shall, where applicable, provide input on amendments to the degree program and examination regulations. [6]The members of the Examinations Committee shall have the right to be present during examinations. [7]The affairs of

the committee shall be governed by Section 30 of the Constitution of Friedrich-Alexander-Universität Erlangen-Nürnberg (**GrO**).

(4) [1]The Examinations Committee shall have a quorum when all members are summoned in writing or electronically, observing a notice period of at least one week, and the majority of members are present and eligible to vote. [2]It passes resolutions in meetings by a majority of the votes cast. [3]Abstention, secret ballots and delegation of votes shall not be permitted. [4]In the event of a tie, the chairperson's vote is the deciding vote.

(5) [1]The chairperson shall call the meetings of the Examinations Committee. [2]The chairperson shall be entitled to take decisions that cannot be delayed on behalf of the Examinations Committee. [3]Sentence 2 applies accordingly for decisions about inadmissible objections as well as for matters that do not require further discussion or that are of minor importance. [4]The Examination Committee shall be informed of such cases without delay. [5]Furthermore, unless these degree program and examination regulations state otherwise, the Examinations Committee shall have the right to transfer individual tasks to the chairperson as well as revoke these.

(6) [1]Official notifications in legal matters pertaining to examinations shall be made in writing; reasons shall be given and information on legal remedies available to the person shall be included. [2]Students shall be given the opportunity to make a statement before negative decisions are finalized. [3]The Examinations Committee shall have the right to rule that official notifications in legal matters pertaining to examinations may be sent out in electronic form to the individual students. [4]Any notification of objection in questions of examination legislation shall be issued on behalf of the President following consultation with the Examinations Committee and after hearing the examiners.

Section 10 Admissions Committee for the Master's Degree Program

(1) The evaluation of the qualification and admission requirements for the Master's degree program shall be the responsibility of the Admissions Committee.

(2) [1]The Admissions Committee shall consist of nine members of research staff in principal employment at the Department of Physics pursuant to Section 53 (4) **BayHIG** who are authorized examiners according to **BayHIG** and the Higher Education Examiners Act (**HSchPrüferV**, Hochschulprüferverordnung). [2]At least six members including the chairperson shall be professors. [3]The members shall be suggested by the Department of Physics and appointed by the Faculty Council of the Faculty of Sciences for a term of office of three years; re-election shall be permitted. [4]The Faculty Council shall elect one of the members as the chairperson. [5]Section 9 (4) and paragraph (5)(1) shall apply accordingly.

Section 11 Examiners, Observers, Exclusion Due to Personal Involvement, Obligation to Confidentiality

(1) [1]The Examinations Committee shall appoint examiners and reviewers. [2]All persons eligible to administer examinations according to the current version of **BayHIG** and **HSchPrüferV** shall be eligible for appointment as examiners or reviewers. [3]Sections 19, 31 and 41 shall also apply to appointing examiners for seminar or colloquium presentations, Bachelor's theses and Master's theses.

(2) [1]A change of examiners shortly before the start of an examination shall be permissible on urgent grounds. [2]If an eligible examiner leaves the University, they shall usually remain eligible to act as an examiner for up to one year. [3]Eligible examiners who only have a temporary contract shall only remain eligible to act as an examiner for the contractually agreed duration of employment. [4]The relevant Examinations Committee shall have the right to extend this period upon request.

(3)[1] Persons who have completed the degree program in question or a degree program related to it at the same qualification level shall be eligible for appointment as observers. [2]Observers shall be research associates in principal employment at the University.

(4) Exclusion from the deliberation and voting process of the Examinations Committee as well as from the positions of examiner and observer due to personal involvement shall be governed by Section 51 (2) **BayHIG** in conjunction with Sections 20 and 21 **BayVwVfG**.

(5) The obligation to confidentiality of the Examinations Committee and other persons involved in matters pertaining to examinations shall be governed by Section 26 (2) sentences 2 and 3 **BayHIG**.

Section 12 Announcement of Examination Type, Examination Dates and Examiners, Registration, Withdrawal, Consequences of Delayed or Incorrect Withdrawal

(1) [1]The type and scope of the examinations are shown in **Appendices 2** to **5**. [2]The dates of the examinations and the names of the examiners shall be announced in good time and according to local practice.

(2) [1]Students shall register for the individual module examinations after the start of the lecture period. [2]The registration dates and formalities shall be announced by the Examinations Committee in good time and according to local practice. [3]As a rule, students must register correctly on the provided platform in order to sit the examination. [4]Notwithstanding sentences 1 to 3, students are automatically registered for the corresponding examination in the case of laboratory courses, as indicated in the respective module description, following their independent registration for participation in the laboratory course; if no such indication is made in the module handbook, sentences 1 to 3 shall apply. [5]Section 32 (2) must be observed for registration for resit examinations.

(3) [1]Notwithstanding the deadlines set forth in Section 8, withdrawal from individual examinations shall be possible without adverse consequences. [2]At the latest, students may withdraw from an examination up until the examination is scheduled to start by failing to attend. [3]Students are not obliged to state their reasons for withdrawal. [4]After this point in time, withdrawal shall only be possible if reasons beyond the student's control according to Section 8 (1)(4) apply. [5]Notwithstanding sentences 1 to 3, in cases covered by paragraph 2 sentence 4, withdrawal from the examination is only permissible for reasons beyond the student's control, particularly in the case of illness. [6]Such reasons shall be provided in writing to the Examinations Committee without delay pursuant to (4). [7]A declaration of withdrawal or withdrawal by failing to attend the examination pursuant to sentence 2 is irrevocable; by filing a declaration of withdrawal or failing to attend the examination as stipulated in sentence 2, the registration for the examination for this examination date ceases to apply and the student is no longer

entitled to attend. [8]Section 32 (3) must be observed for withdrawal from resit examinations. [9]The consequences of a delayed or invalid withdrawal shall be governed by (4).

(4) [1]An examination shall be graded as “nicht ausreichend” (unsatisfactory; 5.0) or “nicht bestanden” (fail) if the student withdraws from the examination after the withdrawal period (cf. paragraph 3) without good reasons. [2]In cases where the student is unable to sit an examination due to illness, a certificate from an official medical examiner (vertrauensärztliches Attest) may be required by the Examinations Committee responsible. [3]The doctor’s certificate or certificate from an official medical examiner must include a description of the student’s ailment and state how this affects the student’s ability to perform to their full potential during the examination, especially due to a reduction in their physical or mental capacity.

Section 13 Accreditation of Skills

(1) [1]Study periods, and course and examination achievements achieved in degree programs or by successfully taking part in a distance learning unit as part of a degree program at FAU or at other public or state-approved universities in the Federal Republic of Germany, or in degree programs at public or state approved universities in countries other than Germany shall be recognized according to these examination regulations unless there are significant differences in the skills acquired and required. [2]The same shall apply to course and examination achievements obtained at a public or state approved university in Bavaria within the context of a module program or additional studies, at the Virtual University of Bavaria (vhb), or within the context of an early entrance program or university studies started while still at school. [3]Recognition enables students to continue their studies, to take examinations, to start a further degree program or to be admitted to a doctoral degree.

(2) [1]Skills acquired outside the university sector or within the context of degree programs for professional development or for acquiring further qualifications may be accredited if they are equivalent. [2]Skills acquired outside the university sector may replace a maximum of half of the skills required.

(3) [1]The grades achieved in accredited course and examination achievements shall be transferred if they were awarded according to Section 22. [2]If the grading system applied in the examinations sat at the university or equivalent institution of higher education and accredited by FAU is not identical to the grading system set forth in Section 22, the grades achieved at other universities shall usually be converted according to the following formula:
$x = 1 + 3\,(N_{max} - N_d)/(N_{max} - N_{min})$ with
x = converted grade
N_{max} = best grade attainable
N_{min} = lowest grade for passing
N_d = grade attained
[3]Two decimal places shall count towards the module grade for grades thus calculated; further decimal places shall be omitted without being rounded. [4]If conversion according to sentence 2 is not possible or can be proven to serve no purpose, the Examinations Committee shall determine a system by which to calculate the grades.

(4) [1]If 30 or more ECTS credits are recognized or accredited, the student shall be permitted to enter at a higher semester. [2]As a rule, students shall move up one semester for every 30 ECTS credits that are accredited.

(5) [1]Students must file an application for recognition and accreditation. [2]The documents needed for this accreditation shall be submitted to the chairperson of the Examinations Committee. [3]Subject to the provisions in sentence 3, the student shall have a legal claim to accreditation or recognition if the conditions stipulated in paragraphs 1 and 2 are met. [4]Accreditation or recognition is only possible if the student has not already lost the right to be examined in that subject at FAU by passing or failing to pass the relevant examination at the final attempt. [5]The decision shall rest with the chairperson of the Examinations Committee, if necessary after consultation with the representatives appointed by the department. [6]The decision shall be issued in writing.

Section 14 Fraud, Breach of Regulations, Exclusion from Further Participation

(1) [1]In case of plagiarism or an attempt to commit fraud or to influence the result of an examination through the use of unauthorized aids, the examination in question shall be graded “nicht ausreichend” (unsatisfactory, 5.0). [2]Unauthorized aids for completing examination or course achievements pursuant to sentence 1 include in particular the use of artificial intelligence applications that are capable of replacing the student’s own performance, unless this is expressly permitted by the examiner. [3]All cases according to sentence 1 must be reported by the examiner to the chairperson of the Examinations Committee who subsequently notifies the Examinations Office in writing.

(2) Persons who disturb the orderly examination process may be excluded from continuing the examination by the authorized examiner or the supervising person; in this case the examination in question shall be graded as a fail or “nicht ausreichend” (unsatisfactory; 5.0).

(3) In the case of repeated or severe breaches as stipulated in (1) or (2), the Examinations Committee may exclude students from participating in any further examinations in the degree program pursuant to these degree program and examination regulations, resulting in the student losing the right of examination in the relevant degree program (failed at the final attempt).

Section 15 Revocation of Degrees

The revocation of degrees shall be governed by Section 101 **BayHIG**.

Section 16 Faults in the Examination Process

(1) Should it turn out that the examination process was faulty in a manner that influenced the result of the examination, it shall be ordered upon a student’s request that a certain student or all students shall resit the examination or parts of the same.

(2) Faults in the examination process shall be reported to the chairperson of the Examinations Committee or the examiner without delay.

(3) Six months after completion of the examination, resit examinations may no longer be ordered as stipulated in paragraph (1).

Section 17 Written Examination, Multiple Choice Examinations

(1) [1]In written examinations (see **Appendices 2** to **5** for types and durations of written examinations) students are required to prove that they are capable of identifying a

problem and finding a solution to that problem within a fixed period and with set materials, using the conventional methods employed in their field. [2]This applies in particular to invigilated written examinations (*Klausur*). [3]With the exception of a traditional written examination (*Klausur*), written examinations may also be held as open book examinations during which students have to complete one or several tasks in a certain time without supervision using either a wide range of aids or whichever aids they like, but without the assistance of third parties; further details are stipulated in the module description. [4]In the case of examinations as defined in sentence 3, tasks shall as far as possible be tailored to test higher-level skills such as understanding, analysis, transfer and application.

(2) [1]Written examinations shall have a minimum duration of 60 and a maximum duration of 180 minutes. [2]Details of the lengths of each examination are given in **Appendices 2** to **5**.

(3) [1]Written examinations shall be graded by the author of the examination questions, unless stipulated otherwise. [2]If a written examination is graded as “nicht ausreichend” (unsatisfactory; 5.0), it shall be presented to a second examiner for evaluation. [3]The evaluation of each examiner must be documented in writing and reasons for the final grade must be made clear.

(4)[1]If a student is unable to attend a written examination due to illness or spending a semester abroad and taking the examination at the next possible date would lead to a conflict with adhering to examination deadlines or completing the degree program correctly which would not have arisen for the student previously, the Examinations Committee can, in exceptional circumstances and in consultation with the examiner, allow the examination to be taken as an oral examination provided this is not ruled out by the teaching concept of the module. [2]In instances covered by sentence 1, the scope of the oral examination is determined by the Examinations Committee in consultation with the examiner.

(5) [1]Written examinations may take the form of multiple-choice examinations (with one or more possible correct answers), either in full or in part. [2]Detailed information on the modules with multiple choice examinations is given in the module handbook. [3]The candidate must indicate which of the answers to the questions they consider to be correct. [4]Examination questions must allow for reliable examination results. [5]When setting the examination questions, the answers that shall be recognized as applicable must be defined. [6]Multiple answers shall not be permitted and shall not be evaluated in cases where the examination task does not allow multiple answers. [7]Before the evaluation of the examination results, at least two of the authors of the examination shall assess whether the examination questions meet the requirement set out in sentence 4 and allow for reliable examination results. [8]If the results of this assessment show that individual examination questions contain errors, these questions must not be considered when determining the examination result; a reduced number of examination questions must be assumed. [9]A reduction in the number of examination questions must not have any negative consequences for examinees. [10]No minus points may be awarded beyond the respective question.

(6) [1]The authors of the examination pursuant to paragraph (5)(7) shall determine when the examinations have been passed pursuant to paragraph (5)(1) and shall set a relative pass limit (sentence 2 (2)). [2]Unless stipulated otherwise in the relevant degree

program and examination regulations, examinations pursuant to paragraph (3)(1) shall be deemed to have been passed if

1. the examinee answered at least 50 percent of the examination questions correctly/achieved at least 50 percent of the attainable points, or
2. the examinee answered at least 40 percent of the examination questions correctly/achieved at least 40 percent of the attainable points and the number of correct answers/points obtained is no more than 17 percent below the average number of correct answers/points obtained by all examinees sitting the examination for the first time.

[3]The reference group of examinees sitting the examination for the first time pursuant to sentence 2 (2) must consist of at least 50 people, otherwise the relative pass limit shall not be applicable. [4]If sentence 2 (2) is applied, the Dean of Studies shall be notified.

(7) In case of written examinations that are not entirely composed of multiple choice questions, paragraphs (5) and (6) shall only apply to the respective part.

Section 18 Oral Examination

(1) [1]In oral examinations participants must demonstrate both general and specific knowledge of the subject being tested. [2]Oral examinations taken by just one authorized examiner shall be conducted in the presence of an observer appointed by the examiner. [3]These are individual examinations and shall have a minimum duration of 15 and a maximum duration of 45 minutes. [4]Details of the lengths of each examination are given in **Appendices 2** to **5**.

(2) In oral examinations in the presence of several authorized examiners, each examiner shall determine the grade according to Section 22 (1).

(3) [1]A record shall be kept of the oral examination; this shall include the following: time, date and duration of the examination; subject and result of the examination; the names of the examiners, the observer and the student; and any special occurrences. [2]The record shall be signed by the authorized examiners and the observer. [3]It is not usually necessary to record the questions asked in the examination or the answers given. [4]The record shall be stored for at least two years.

(4) [1]Students planning to undergo the same examination in a subsequent examination period shall be permitted to be present as listeners during oral examinations within the bounds of feasibility with regard to the examination's location; listeners shall be excluded at the examinee's request. [2]Under no circumstances will these students be permitted to be present during the deliberation process and the announcement of the examination result.

Section 19 Presentations

(1) [1]In presentations, students should prove that they are capable of working independently on a scientific topic, presenting it clearly for a particular audience and defending their point of view in expert discussions. [2]Presentations are assessed on the basis of content, quality of the material presented, verbal presentation, conduct during the discussion and, if applicable, performance during the preparation of the presentation. [3]The supervisor for the presentation should as a rule be appointed as an examiner. [4]If several authorized examiners pursuant to Section 11 (1)(2) attend a presentation, there shall be no need to include an observer.

(2) Section 18 (2) and (3) shall apply accordingly.

(3) Presentations may be declared as public in these examination regulations, their **Appendices** or in the module handbook; in this case listeners shall be permitted without the restriction stipulated in Section 18 (4) (1) (2).

§ 20 Practical Achievements and Research Projects

[1]The type and scope of the examinations in the laboratory courses and research projects depend on the specific manner in which the respective module is taught; see module handbook for details. [2]As a rule, the examination consists of conducting various experiments (ungraded) and documenting the experiments or the research project in a series of reports or in a final report (either graded or ungraded). [3]In the case of laboratory courses, it is possible for the documentation of individual experiments to be submitted in advance for an interim assessment.

Section 21 On-Campus Electronic Examinations

[1]Examinations may be administered in electronic form on campus. [2]Detailed information on the modules in which examinations are held in electronic form on campus is given in the module handbook. [3]Electronic examinations (e-examinations) on campus are examinations which are administered and evaluated via computer or using digital technology. [4]The authenticity and integrity of the examination results must be ensured. [5]Automatically calculated evaluations of examination achievements shall be verified by one examiner at the request of the examinee or two examiners in case of a failed examination.

Section 22 Evaluation of Examinations, Final Grade

(1) The evaluation of individual examinations shall be expressed by the examiners with the following grades:

Grade (in words)	Grade	Key
sehr gut (very good)	= 1.0 or 1.3	an outstanding achievement;
gut (good)	= 1.7 or 2.0 or 2.3	an achievement that exceeds the requirements considerably
befriedigend (satisfactory)	= 2.7 or 3.0 or 3.3	an achievement that fulfills average requirements;
ausreichend (sufficient)	= 3.7 or 4.0	an achievement that fulfills the requirements despite flaws;
nicht ausreichend (unsatisfactory)	= 4.3 or 4.7 or 5.0	an achievement that no longer fulfills requirements due to considerable flaws

(2) [1]An examination (Section 6 (2)) has been passed if it has received at least the grade “ausreichend” (sufficient). [2]For ungraded course achievements (Section 6 (3)(4)) the result shall be either “bestanden” (pass) or “nicht bestanden” (fail). [3]Except when otherwise stipulated in sentence 8, a module examination shall have been passed when all partial achievements (Section 6 (2)(3)) have been passed. [4]If an examination has several examiners or consists of several partial achievements within the meaning of

Section 6 (2)(3), the total grade is calculated from the arithmetic average of the individual grades, weighted if applicable according to **Appendices 2** to **5** or 5; the grading system described in (1) shall not be used. [5]Two decimal places shall count towards the module grade; all other decimal places shall be omitted without being rounded.

(3) [1]The authors of the examination shall set the assessment criteria for multiple choice examination achievements pursuant to Section 17 (5)(7). [2]If no assessment criteria are set, the examination achievements shall be graded as follows: [3]Students who answer the required minimum of examination questions correctly or attain the minimum number of attainable points according to Section 17 (6) sentences 1 or 2 shall receive the grade:
1.0 (sehr gut/very good) if at least 75 percent of the remaining questions were answered correctly or remaining points were achieved,
2.0 (gut/good) if at least 50 percent but less than 75 percent of the remaining questions were answered correctly or remaining points were achieved,
3.0 (befriedigend/satisfactory) if at least 25 percent but less than 50 percent of the remaining questions were answered correctly or remaining points were achieved,
4.0 (ausreichend/sufficient) if zero or less than 25 percent of the remaining questions were answered correctly or remaining points were achieved.
[4]Grades can be increased or decreased by 0.3 according to the percentage; grades 0.7 and 4.3 are excluded. [5]Students who do not achieve the required minimum number of points shall receive the grade 5.0. [6]Sentence 3 notwithstanding, the grades 4.3 and 4.7 may be awarded in cases in which examinations according to Section 17 (7) partly take the form of a multiple choice examination.

(4) With the exception of the Bachelor's and Master's thesis, the period for marking and evaluating an examination is six weeks and must be completed at least two weeks before the date of the resit examination; the Examinations Committee shall decide on any exceptions.

(5) [1]Unless stipulated otherwise in Sections 31 and 43 and the relevant **Appendix** or in the module handbook, the module grades shall be calculated from the average of the individual grades achieved in the examinations according to Section 6 (2)(3); the grading system described in paragraph (1)(1) shall not apply. [2]Two decimal places shall count towards the module grade; all other decimal places shall be omitted without being rounded. [3]If only one graded examination is held in a module, this shall constitute the grade for the module. [4]If a graded examination is not held, the result for the module is either 'bestanden' (pass) or 'nicht bestanden' (fail). [5]The **appendices** may stipulate compensatory measures for failed partial examinations.

(6) [1]The preliminary examination (GOP) shall be evaluated according to Section 35. [2]The preliminary examination (GOP) shall be ungraded.

(7) [1]The overall grade of the Bachelor's examination, the Master's examination and the modules shall be as follows:
at an average of up to 1.50 = sehr gut (very good)
at an average of over 1.50 and up to 2.50 = gut (good)
at an average of over 2.50 and up to 3.50 = befriedigend (satisfactory)
at an average of over 3.50 and up to 4.00 = ausreichend (sufficient).
[2]If the overall grade of the Bachelor's or Master's examination is 1.20 or better, the degree is awarded "with distinction" and recorded accordingly on the degree certificate.

(8) [1]All module grades of the degree program shall be included in the calculation of the final grade of the Bachelor's or Master's examination, weighted according to their ECTS credits, unless stipulated otherwise in **Appendix 1** or **3**. [2]Paragraph 2 (5) shall apply accordingly.

(9) [1]If more modules were completed successfully than necessary for passing the Bachelor's or Master's examination, only those grades that are necessary to fulfill the conditions stipulated in Sections 33 and 45 shall be used to calculate the final grade. [2]If more than one combination of modules to be accredited is possible, the combination shall be selected that gives the best overall grade. [3]Other combinations can be credited upon the student's request.

Section 23 Invalidity of Examinations

(1) If fraudulent methods were used during the examination and if this only becomes known after the certificate has been awarded, the Examinations Committee may correct the grade retrospectively and declare the examination as having been failed in part or in full.

(2) If the requirements for admission to the examination were not fulfilled while no fraudulent acts were committed willfully, these circumstances shall be considered remedied by the passing of the examination.

(3) Students shall be given the opportunity to make a statement before a decision is taken.

(4) [(1)] The incorrect certificates shall be withdrawn; new certificates shall be issued if applicable. [2]A decision according to (1) and (2) shall be excluded after a period of five years starting with the certificate's date of issue.

Section 24 Inspection of Examination Records

(1) After the completion of the individual examination procedures, students shall on request be entitled to inspect their written examination papers, the corresponding reviews by the examiners, and the examination records.

(2) [1]Students shall submit the request to the examination body responsible within one month of being notified of the results. [2]Unless the Examinations Office is responsible, the examiner shall allow the inspection; further details shall be decided by the Degree Program Committee. [3]Students prevented from observing the deadline according to (1) through no fault of their own shall be granted full restitution according to Section 32 of the **Bavarian Administrative Procedures Act (BayVwVfG)**.

Section 25 Final Academic Record, Transcript of Records, Diploma Supplement, Grade Distribution Table, Degree Certificate

(1) [1]Students who have successfully completed the Bachelor's or Master's degree program shall receive a final academic record, a transcript of records, a diploma supplement, a grade distribution table and a degree certificate, as far as possible within four weeks of all examination results being available. [2]The certificates shall be signed by the chairperson of the Examinations Committee or their deputy.

(2) [1]The final academic record shall contain the modules and module grades used in the calculation of the Bachelor's or Master's examination grade as well as the Bachelor's or Master's examination grade itself. [2]The transcript of records lists all passed modules; the final academic record and the transcript of records may be combined into one document. [3]The transcript of records and the diploma supplement shall be issued in both German and English. [4]Information not yet available to the Examinations Office must be submitted together with the required proof by the time of the degree program's completion at the latest; otherwise this information may no longer be taken into consideration for the documents listed in (1).

Section 26 Notification of Failed Examinations

[1]Students who fail the Bachelor's or Master's examination at the final attempt shall receive notification that the examination has been failed at the final attempt, including information on legal remedies available. [2]Students can also print off an overview of their grades achieved in the individual modules in the examination administration system.

Section 27 Adjustments to Examination Arrangements

(1) [1]The examination procedure shall be adjusted to take into account the nature and extent of a student's disability. [2]Students with a doctor's certificate showing credibly that they are either partially or fully incapable of sitting the examination in the intended manner due to long-term or permanent disabilities which do not affect the performance which is being tested shall be entitled to be granted permission by the chairperson of the Examinations Committee to have this disadvantage offset by working time being extended accordingly or the examination process being structured differently; however, care must be taken to ensure that the examination is still suitable to provide evidence of skills which are being assessed by the examination. [3]Sentences 1 and 2 shall apply accordingly to students in special circumstances, the effects of which on the student's ability to sit the examination are similar to a longer illness or disability as stated above in sentence 2.

(2) Adjustments to examination arrangements may be made for pregnant students if the student submits a medical certificate confirming that she will be at least 30 weeks pregnant or that she is suffering from special pregnancy-related health restrictions by the examination date to the Examinations Committee responsible at least four weeks before the examination date.

(3) [1]Decisions pursuant to (1) and (2) shall only be taken by the chairperson of the Examinations Committee upon written request and after consulting with the Disability Liaison Officer. [2]Students may be required to submit an official certificate from a medical examiner (vertrauensärztliches Attest) proving the fulfillment of the conditions in paragraph 1 or other proof confirming their special circumstances. [3]Applications for

adjustments to examination arrangements shall be made to the Examinations Committee at the latest four weeks before the examination, or at least before commencing the examination.

Part II: Special Provisions

Part I: Preliminary Examination (Grundlagen- und Orientierungsprüfung) and Bachelor's Examination

1. General Rules for Bachelor's Degree Program

Section 28 Admission Requirements for Examinations

(1) [1]Students enrolled in a Bachelor's degree program shall be deemed as admitted to the Bachelor's examination and the module examinations of which the Bachelor's examination consists, unless admission is to be refused. [2]If there are elective options for the modules to be completed for the Bachelor's examination, students shall be considered admitted to the modules they choose by registering for the examination; the choice shall be binding and students may also choose several modules offered as an alternative. [3]Admission shall be refused if:

1. Requirements are not met or certificates are not submitted at all or not in due time as stipulated in the special provisions of these examination regulations and in **Appendix 2** or **3**
2. The preliminary examination (GOP) has been failed at the final attempt
3. The Bachelor's examination, the Diplom intermediary examination or the Diplom examination in Physics have been failed at the final attempt
4. It has been ordered that the student is to be de-registered, resulting in the revocation of the student's right to sit the examination.

[4]An obstacle to enrollment also exists.

(2) If admission is to be refused, the student shall be informed without delay and informed as to the reasons for the decision and information on the legal remedies available.

(3) Unless stipulated otherwise in Section 30 and notwithstanding the recommendations in **Appendix 2** or **3**, students may choose in which order they complete the modules.

Section 29 Orientation Phase, Grundlagen- und Orientierungsprüfung (GOP)

(1) [1]The first two semesters of the Bachelor's degree program in Physics serve as an orientation phase, during which students acquire important subject-related and methodological skills. [2]In the preliminary examination (GOP), which is part of this orientation phase, students should prove that they

- can fulfill the academic requirements of the Bachelor's degree program in Physics
- have acquired the methodological skills required to continue their studies successfully.

(2) The preliminary examination (GOP) shall be evaluated according to Section 34.

Section 30 Bachelor's Phase

(1) [1]The Bachelor's phase serves to build and expand upon the knowledge taught during the orientation phase and teach students the knowledge required to start a career. [2]It consists of the module examinations of the Bachelor's phase, the Bachelor's examination and the Bachelor's colloquium.

(2) [1]The fifth semester of the degree program can be used for a semester abroad. [2]Achievements obtained abroad shall be accredited according to Section 13.

Section 31 Bachelor's Thesis

(1) [1]The Bachelor's thesis is intended to show that the student is capable of dealing with a problem from the field of physics independently, with scientific methods and within a set period, and of presenting the results in an appropriate form. [2]A total of 15 ECTS credits are awarded for the Bachelor's thesis module, with 12.5 ECTS credits being allocated to the Bachelor's thesis and 2.5 ECTS credits to the colloquium (advanced seminar). [3]The Bachelor's colloquium consists of a presentation on the Bachelor's thesis that lasts approximately 30 minutes and is generally public, followed by a discussion. [4]In calculation of the module grades, the Bachelor's thesis has a weighting of 5/6 and the Bachelor's colloquium has a weighting of 1/6. [5]The Bachelor's colloquium shall be omitted if the research specialization is chosen; the number of credits required for the module is reduced to 12.5 ECTS credits and the grade for the Bachelor's thesis shall be the grade for the module.

(2) [1]All full-time and part-time university lecturers within the meaning of Section 19 **BayHIG** who are in principal employment at FAU within the meaning of Section 53 (4) **BayHIG** and are involved in a degree program pursuant to these degree program and examination regulations shall be entitled to award a Bachelor's thesis. [2]The Examinations Committee shall have the right to grant exceptions.

(3) [1]Students shall ensure that they are allocated a subject for their Bachelor's thesis in time to observe the deadlines set forth in Section 8, usually at the start of the lecture period of the sixth semester studying this subject at the latest. [2]The subject and the date of its allocation shall be confirmed by the supervisor and presented to the Examinations Committee. [3]Should a student, despite a genuine effort to that end, not be allocated a subject, the chairperson of the Examinations Committee shall allocate a subject and a supervisor to the student upon request.

(4) [1]The period between the allocation of the subject and submission of the thesis shall not exceed three months (standard thesis work period); it may only be extended by a maximum of one month in justified exceptional circumstances. [2]The scope of the subject shall be such that the workload for the Bachelor's thesis and the preparation of the Bachelor's colloquium does not exceed a total of 450 hours (375 hours for the research specialization) and students are able to complete the Bachelor's thesis within the standard thesis work period.

(5) [1]If a student submits a doctor's certificate proving that they are incapable of working on the thesis, the period set for working on the thesis will be suspended temporarily. [2]If the period for working on the thesis is suspended for a considerable period of time (6 months minimum) as defined in sentence 1, the Examinations Committee shall check in consultation with the supervisor whether the period for working on the thesis ought to be terminated due to ill health, in which case the Bachelor's thesis shall be

registered with a new topic once the student is well again. [3]Sentences 1 and 2 shall apply accordingly in cases in which the student is prevented from working on the Bachelor's thesis due to serious reasons beyond their control and outside their sphere of risk.

(6) [1]The subject of the Bachelor's thesis may only be returned once, provided the chairperson of the Examinations Committee grants approval and the subject is returned within the first two weeks of the period for thesis work. [2]Otherwise the Bachelor's thesis shall be graded "nicht ausreichend" (unsatisfactory; 5.0) if the subject is returned; it shall be regarded as rejected. [3]Sentence 2 shall apply accordingly if the Bachelor's thesis is not submitted on time.

(7) [1]The thesis may be written in English on the student's request and with the supervisor's approval. [2]The chairperson of the Examinations Committee shall decide whether to grant the student's request. [3]The Bachelor's thesis shall contain a summary of results at the end. [4]The design of the title page shall follow the template provided by the Examinations Committee.

(8) [1]One bound copy and one electronic, machine-readable copy each shall be submitted to the supervisor and the library of the Department of Physics ("Gruppenbibliothek Physik"); confirmation that the thesis has been submitted, stating the date of submission, and a copy of the title page shall be submitted to the Examinations Office. [2]In order to meet the deadline, the final version of the Bachelor's thesis can be submitted by making it available in electronic form (usually as a PDF file) to the Chairperson of the Examination Committee; it must then be submitted to the supervisor and to the library in accordance with sentence 1 as soon as possible. [3]The thesis shall include a declaration by the student confirming that the thesis is an original work, that no other sources or materials than the ones listed were used and that the thesis is not to any significant degree identical to one which has already been submitted to a different examination authority (prevention of plagiarism); Section 14 (1)(2) applies accordingly.

(9) [1]The thesis shall be evaluated by two examiners within four weeks of submission. [2]The person who allocated the subject shall generally be the first reviewer.

(10) [1]The thesis shall be accepted if it receives at least the grade "ausreichend" (sufficient) from both reviewers. [2]It shall be rejected if it receives the grade "nicht ausreichend" (unsatisfactory) from both reviewers. [3]If one reviewer grades the thesis as "nicht ausreichend" (unsatisfactory) and the other reviewer grades it at least as "ausreichend" (sufficient), the Examinations Committee shall arrange for a third review and grading to be carried out by an examiner according to Section 11. [4]If the third grade is also "nicht ausreichend" (unsatisfactory), this shall be the grade the thesis receives; otherwise the grade shall be calculated as the arithmetic average of the two grades that are at least "ausreichend" (sufficient). [5]Section 22 (2)(5) shall apply accordingly.

(11) [1]If the thesis is rejected or if it is considered to have been rejected, it may be repeated once; a second repetition or revision shall not be permitted. [2]The student shall ensure that they receive a new subject for the repetition of the thesis within two months following the announcement of the rejection; otherwise the thesis shall be regarded as having been failed at the final attempt. [3]Paragraphs 1 and 2, paragraph 3

sentences 2 and 3 and paragraphs 4 to 9 shall apply accordingly in the case of a repetition.

(12) Provisions that deviate from paragraphs 1 to 11 may be agreed upon within the framework of dual degree agreements or degree program co-operations.

Section 32 Resitting Examinations, Changing Modules

(1) [1]With the exception of the module examinations of the preliminary examination (GOP), the examinations for laboratory courses and the Bachelor's thesis module, every failed module examination may be resat three times. [2]Examinations for modules that are part of the Grundlagen- und Orientierungsprüfung (GOP) may only be resat once; Section 31 (11) shall apply to the repetition of the Bachelor's thesis module. [3]Examinations in laboratory courses can be repeated twice, however, in the case of a resit, the laboratory course must be taken again, notwithstanding sentence 5. [4]The resit examination shall be limited to the failed examination or course achievement. [5]In the case of modules with compulsory attendance, students shall only be obliged to attend the teaching unit again if the manner in which the unit is taught or the nature of the examination is such that the student must attend again in order to acquire the required skills; see module handbook for details. [6]The department must offer the student the option of a resit examination within a period of at most six months.

(2) [1]Students register for the resit examination independently, subject to the regulation in sentence 2. [2]Notwithstanding sentence 1, students register independently for the repetition of a laboratory course in a semester of their choice in the case of laboratory courses where, according to paragraph 1 (5), repetition is required; Section 12 (2) sentence 4 shall apply.

(3) Withdrawal from resit examinations is possible according to Section 12 (3), whereby the restriction of Section 12 (3) sentence 2 only applies to modules as per paragraph 2 sentence 2.

(4) [1]The student is obliged to check their examination status in the examination administration system regularly. [2]The student shall inform the Examinations Office of any discrepancies without delay. [3]The obligation to resit an examination remains even in the case of de-registration and leave of absence. [4]If a student misses the resit examination the examination shall be deemed to have been failed unless the Examinations Committee grants the student an exception due to special reasons beyond the student's control. [5]The provisions regarding maternity protection, parental leave and caregiver leave (Section 8 (2)) shall apply.

(5) [1] Voluntarily resitting a passed examination of the same module shall not be permitted. [2]Alternative modules may be attended and completed instead of failed modules within the examination periods set forth in Section 8; further details are stipulated in Section 33 (2).

2. Examination Subjects in the Bachelor's Degree Program

Section 33 Structure of the Bachelor's Degree Program

(1) [1]Students shall successfully complete modules from the Bachelor's degree program worth a total of 180 ECTS credits to pass the Bachelor's examination. [2]The degree program comprises compulsory modules, an elective module, key qualifications and free electives as set forth in the provisions below, in **Appendix 2** and in the paragraphs below. [3]Particularly talented, capable and dedicated students have the option of completing the Bachelor's phase of the degree program from the fourth semester onwards in the research specialization pursuant to Section 39 in conjunction with **Appendix 3**. [3]Due to the specific subject skills that must be acquired as part of the qualification goals of the Bachelor's degree program as defined in the module description, modules may not be taken twice and accredited to different areas of the degree program.

(2) [1]If there is the option to choose which modules are to be completed in the individual areas of the Bachelor's degree program, the modules on offer may be taken in parallel. [2]If individual examinations are failed, the failed attempts shall not be counted towards examination attempts allocated for the other modules. [3]This shall also apply in the event that individual modules have been failed at the final attempt or are considered to have been failed at the final attempt. [4]The area in question or the Bachelor's degree program as a whole shall only be considered to have been failed at the final attempt as stipulated in Section 8 once the number of ECTS credits for the respective area can no longer be obtained by passing alternative modules.

Section 34 Compulsory Modules of the Bachelor's Degree Program

[1]Students shall successfully complete compulsory modules in the Bachelor's degree program worth a minimum of 142.5 ECTS credits to pass the Bachelor's examination. [2]These modules are:

1. Experimental physics 1+2 and Experimental physics 3+4
2. At least one of either Experimental physics 5 or 6
3. Introductory laboratory course
4. Laboratory courses Physics experiments A to C
5. Theoretical physics 1 (Mechanics)
6. At least two of the three modules Theoretical physics 2 to 4 (Electrodynamics, Quantum mechanics, Statistical physics)
7. Colloquium in Theoretical physics
8. At least two of the three modules Mathematics for physics students A to C
9. The module Data processing in Physics
10. Bachelor's thesis module (including Bachelor's colloquium).

[3]For students completing the research specialization in accordance with Section 39, the compulsory modules comprise at least 147.5 ECTS credits from the following modules:

1. Experimental physics 1+2 and Experimental physics 3
2. Experimental physics in the research specialization
3. Introductory laboratory course and laboratory courses Physics experiments A and B (in the practical project variant)
4. Theoretical physics 1 (Mechanics) and Theoretical physics 2 (Electrodynamics)
5. Integrated course 1 and Integrated course 2
6. One module Research-related project work
7. One module Study workshop

8. At least two of the three modules Mathematics for physics students A to C
9. The module Data processing in Physics
10. Bachelor's thesis module (without Bachelor's colloquium).

Section 35 Grundlagen- und Orientierungsprüfung (GOP)

In order to successfully pass the preliminary examination (GOP), students must obtain a minimum of 30 ECTS credits from the modules listed for the first two subject semesters in **Appendix 2** or **3** by the end of the second semester.

Section 36 Elective Subjects (Elective Physics Subjects and Elective Non-Physics Subjects)

(1) [1]The elective subjects are divided into the elective physics subjects and the elective non-physics subjects. [2]Students must complete elective modules worth a total of at least 25 ECTS credits, or in the case of the research specialization, at least 20 ECTS credits in accordance with Section 39. [3]The elective modules allow students to specialize in certain areas of physics or related interdisciplinary subjects, which gives them the opportunity to establish a profile suited to certain areas of work or specialist study in the consecutive Master's degree program in Physics.

(2) [1]In the physics electives, the students acquire specialized and interdisciplinary knowledge in physics-related topics of their choice. [2]In the standard Bachelor's degree program, students must complete modules worth at least 10 ECTS credits, among them the Physics seminar module. In the research specialization, students must complete modules from elective physics subjects worth at least 5 ECTS credits. [3]The seminar promotes both subject-specific and personal and social skills, with students preparing a specific topic for an expert audience, presenting it in a manner suited to the target group and practicing leading an academic discussion; the presentation shall be pitched at a level suitable for a Bachelor's degree program. [4]As a rule, the elective physics subjects consist of an advanced seminar (2 semester hours) or a practical course (2 semester hours). [5]As a rule, students are awarded 5 ECTS credits for each module. [6]Examination achievements are either a 90-minute written examination, a 30-minute oral examination or a 45-minute presentation. [7]The module handbook shall list the modules that count as elective physics modules and stipulate the details of examinations. [8]Any exceptions to the size of the module, examination duration or the type of examination shall be allowed in exceptional cases if justified on the basis of teaching methods or the subject in question; further details are stipulated in the module handbook. [9]The scope, composition and format of individual modules may therefore deviate from the data given in **Appendix 1**. [10]Details of any deviation shall be stipulated in the respective module handbook.

(3) [1]In the **non-physics elective subjects**, students shall learn subject-related methods of research and explore their subject in more depth. [2]Students shall successfully complete modules worth at least 10 ECTS credits. [3]In the orientation phase of the Bachelor's degree program, students obtain basic knowledge in a non-physics subject (non-physics elective subject 1). [4]Currently Astronomy, Chemistry, Computer Science, Physical Chemistry and Materials Science are permitted. [5]The catalog of modules that may be chosen may be expanded; see the module handbook for more information. [6]In the Bachelor's phase, students may acquire specialized knowledge in this subject, or basic knowledge in other non-physics elective subjects provided they are of relevance to a physics degree. [7]This shall apply in particular to all subjects at the Faculty of Sciences, the Faculty of Engineering and non-clinical subjects at the Faculty of Medicine;

other cases shall be decided by the Examinations Committee if so requested by the student. [8]The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable **(degree program and) examination regulations** and/or the module handbook.

Section 37 Key Qualifications

[1]Interdisciplinary skills are taught in the key qualifications area that are not directly connected to the subject of physics. [2]Modules worth at least 2.5 ECTS credits shall be completed from the range of subjects available at the University that are not part of the Physics degree program. [3]Upon justified written request, the Examinations Committee may also recognize extramural courses as key qualifications. [4]Modules from the key qualifications area shall be ungraded. Section 36 (3)(8) shall apply accordingly.

Section 38 Free Electives

The ETCS credits required to successfully complete the degree program after completion of the modules from the compulsory and elective subjects and the key qualifications area in accordance with Sections 35 to 37 shall be supplemented by further modules from the compulsory and elective subjects or the key qualifications area (free electives).

Section 39 Research Specialization

(1) [1]The degree program structure of the research specialization is stipulated in **Appendix 3**. [2]Achievements may be completed either at FAU or at the University of Regensburg.

(2) [1]A selection committee comprising three professors from the Department of Physics at FAU shall be responsible for selecting the students who are suitable for the research specialization of the Bachelor's degree program. [2]The members of the committee shall be appointed by the Faculty Council of the Faculty of Sciences for a term of office of three years. [3]They may be reappointed. [4]The members of the committee shall elect one of the members as the chairperson and shall appoint a deputy to act in the event of the chairperson's absence.

(3) [1]In order to qualify for the research specialization, by the beginning of the fourth semester of the Bachelor's degree program students must meet the following requirements:

1. [1]Students at FAU shall have successfully completed the modules of the first two semesters stipulated in **Appendix 2** and modules EP-3 and TP-2. [2]Students from other universities shall submit proof of equivalent achievements. [3]If there are achievements missing which can be compensated for, the Admissions Committee may allow the selection of a research specialization under the condition that proof of further achievements worth up to a maximum of 20 ECTS credits and to be determined by the Admissions Committee be submitted at the latest within one year of taking up studies for the research specialization. [4]If proof of the achievements from sentence 3 is not submitted (in good time), students continue their studies in the standard Bachelor's degree program in Physics and any achievements from the research specialization are recognized.
2. [1]The grades for modules EP-12, EP-3, TP-1 and TP-2 and the average grade for the modules MP-A bis MP-C must each be at least "gut" (2.5 or better) and at least one of these grades must be "sehr gut" (1.5 or better). [2]For students from other

universities, this applies to equivalent achievements for the modules named above; Section 13 (3) applies accordingly. [3]The selection committee may grant and govern exceptions, as long as the special qualification in the skills areas defined by the modules selected according to sentence 1 is evident from the remaining proof and circumstances from the point of view of the selection committee. [4]If grades for modules TP-2 or EP-3 or the equivalent achievements have not yet been determined at the time of the selection interview, these grades will not be used for the admission decision.

3. The student shall credibly show that they are suited to taking a degree program with a strong research focus, are particularly motivated and talented and are prepared to commit to dedicate extra effort to completing their research specialization.
4. The student must provide proof of English language proficiency for at least CEFR (Common European Framework of Reference for Languages) level B2 – Vantage or upper intermediate.

[5]The application documents submitted pursuant to paragraph 3, the candidate's assurance that they meet the prerequisites stipulated in sentence 1 (3) and the selection interview pursuant to (5) sentences 3 ff. are taken as the basis to determine whether the requirements stipulated in sentence 1 nos. 1 and 2 are met; proof of language proficiency pursuant to sentence 1 (4) shall be submitted in accordance with the provisions in **Appendix 1** (2)(2)(5).

(4) [1]The application for admission to the research specialization in the fourth semester of the Bachelor's degree program is only possible for the summer semester and can be submitted to the selection committee in accordance with paragraph 2 by February 15 of each year (final deadline). [2]The following documents must be submitted with the application:

1. CV
2. Full details of studies so far and documents proving the applicant's achievements to date (e.g. transcript of records) and
3. A letter of application in which the student details what qualifies them for the research specialization and their goals as well as their special interest and commitment to completing this degree program.

(5) [1]Based on the submitted application documents, the selection committee carries out an initial selection. Those applicants who meet the criteria pursuant to (3) sentence 2 nos. 1 to 2 are included in the next round. [2]The selection committee shall appoint a selection panel for each of the applicants included in the initial selection, consisting of two professors from the Department of Physics. [3]The selection panel shall conduct an interview with the applicant lasting approximately 30 minutes and aimed at checking whether the applicant is suitable for the degree program pursuant to (3)(2)(3) (selection interview). [4]The selection interview aims to check whether applicants are suited to a degree program with a strong research focus by asking questions about the applicant's studies to date, whether the subject-related requirements are met and about the applicant's own research activities, if applicable. [5]Applicants are also given details of the requirements and workload entailed by the research specialization and the level of commitment expected from participants. They are asked to give details of the strategies they would use and any experience they have already gathered which may help them meet these expectations.

(6) [1]After assessing the submitted documents and reflecting on the candidate's qualifications and the selection interview, the selection panel shall unanimously decide

whether the candidate is “suitable” or “not suitable”. [2]If a unanimous decision cannot be taken, the selection panel shall submit a report to the selection committee, which shall then take a majority decision on whether the student is suitable or not suitable. [3]**Appendix 1 (7)** shall apply accordingly.

(7) [1]If the student decides to discontinue the research specialization, they shall be entitled to transfer back to the regular Bachelor’s degree program in Physics without having to fear any disadvantages. [2]The following equivalences shall apply to the Bachelor’s degree program:

1. Part 2 of the module Experimental physics 3+4 and the module Theoretical physics 3 shall be covered by the module Integrated course 1 and the module Physics seminar shall be covered by the module Study workshop 1.
2. The modules Experimental physics 6 and colloquium in Theoretical physics shall be covered by the course Integrated course 2.
3. One Research-oriented project module from the field of experimental physics shall cover the *Physics experiments C* module. Further Research-oriented project modules can each be accredited as one physics elective.
4. The module Experimental physics in the research specialization shall be accredited as the module Experimental physics 5: Nuclear and particle physics.

[4]The decision shall be taken by the Examinations Committee in cases of doubt.

Part II: Master’s Examination

1. General Rules for the Master's Degree Program

Section 40 Qualification for a Master’s Degree Program

(1) [1]In order to qualify for the Master’s degree program, applicants must have completed a relevant degree program with an above-average grade. [2]The following counts as proof that students qualify:

1. A certificate showing that the student has completed
   a) A Bachelor’s degree according to these examination regulations or
   b) A degree from Germany or another country that is equivalent to the qualification specified in no. 1, and
2. A pass in the qualification assessment process according to **Appendix 1**.

(2) [1]Applicants shall belong to the best 50 percent of their class or shall have completed the degree program in question with a final grade of at least 2.5 (“gut”; good). [2]Degrees that were graded according to a different grading system are to have received at least a rating equivalent to the grade “gut” (good); Section 13 (3) shall apply accordingly.

(3) [1]In terms of qualification, the degrees according to (1)(2) no. 1b) must not differ significantly from subject-specific degrees according to (1)(2) no. 1 a). [2]A degree in a Bachelor's degree program in Physics or Materials Physics shall as a rule be deemed an equivalent or relevant degree as stipulated in (1)(2) no. 1 b). [3]If there are significant differences which can be compensated for, the admissions committee may grant admission under the condition that proof of further achievements worth up to a maximum of 20 ECTS credits and to be determined by the admissions committee be submitted within one year of taking up studies for a Master’s degree program. [4]Admission is granted subject to the condition that proof is submitted in good time.

(4) [1]In deviation from (1)(2) no. 1, applicants can be admitted to the Master's degree program if they are enrolled in a relevant Bachelor's degree program, provided they can credibly prove that they have registered for the final examinations for the Bachelor's degree program in the coming examination period and that they will have completed the degree program by the time they start studying the Master's degree program. [2]Proof that the degree has been completed successfully shall be submitted at the latest within one year of beginning the Master's degree program; completing a Bachelor's degree program or equivalent is a prerequisite for formally starting the Master's degree program. [3]Paragraph (3)(4) shall apply accordingly.

Section 41 Master's Examination

(1) [1]The Master's examination shall consist of the required module examinations and the modules from the research phase, in particular the Master's thesis module including the Master's colloquium (advanced seminar). [2]The Master's colloquium is an oral examination that consists of a presentation on the Master's thesis that lasts approximately 45 minutes and that is usually public, followed by a discussion; the examination also focuses on how the thesis relates to a wider physics context. [3]The Master's examination shall have been passed if all required module examinations and the modules of the research phase have been passed.

(2) [1]**Appendix 4** in conjunction with Section 45 shall specify the subjects, type and scope of the Master's examination. [2]The provisions in Section 49 shall additionally apply to students completing the Master's examination with a specialization. [3]Sentences 1 and 2 notwithstanding, the subjects, type and scope of the Master's examination in the research specialization are stipulated in **Appendix 5** in conjunction with Section 50. [4]Modules which have already been the subject of a Bachelor's examination cannot be accredited as part of the Master's examination due to the specific subject skills that must be acquired as part of the qualification goals of the Master's degree program, the same shall apply for taking modules more than once within the Master's degree program. [5]The Examinations Committee may admit exceptions to the rule in (4)(1).

Section 42 Admission Requirements for Examinations

[1]Students enrolled in a Master's degree program shall be deemed as admitted to the Master's examination and the module examinations of which the Master's examination consists, unless admission is to be refused. [2]If there are elective options for the modules to be completed for the Master's examination, students shall be considered admitted to the modules they choose by registering for the examination; the choice shall be binding and students may also choose several modules offered as an alternative. [3]Admission shall be refused if:

1. Requirements are not met or certificates are not submitted at all or not in due time as stipulated in the special provisions of these examination regulations and in **Appendix 4** or **5**,
2. The applicant has failed a Master's examination or a Diplom examination in Physics (in either German or English) at the final attempt or
3. It has been ordered that the student is to be de-registered, resulting in the revocation of the student's right to sit the examination.

[4] Section 28 (2) and (3) shall apply accordingly.

Section 43 Research Phase and Master's Thesis

(1) [1]The Master's thesis is a graded written assignment that concludes the Master's degree. [2]It is intended to show that the student is capable of dealing with a problem from the field of physics independently, with scientific methods and within a set period. [3]The Master's thesis may not, to any significant extent, be identical to a previously submitted Diplom, Bachelor's or Master's thesis (prevention of plagiarism). [4]A total of 30 ECTS credits are awarded for the Master's thesis, with 25 ECTS credits allocated to the Master's thesis and 5 ECTS credits to the Master's colloquium. [5]The work on the Master's thesis is preceded by three months of subject specialization and three months of project planning and preparation that prepare the student on the subject of the Master's thesis. [6]Subject specialization, project planning, Master's thesis and Master's colloquium together make up the year-long research phase.

(2) [1]Students shall ensure that they are allocated a project for the research phase in time to observe the deadlines set forth in Section 8. [2]Should a student, despite a genuine effort to that end, not be allocated a subject, the chairperson of the Examinations Committee shall allocate a project and a supervisor to the student upon request.

(3) [1]The research phase shall be supervised by a lecturer who works in main or secondary employment pursuant to Section 19 **BayHIG** and who works in the degree program in Physics at FAU as their main occupation pursuant to Section 53 (4) **BayHIG**. [2]The Examinations Committee shall have the right to grant exceptions.

(4) [1]After successfully completing the subject specialization and project planning stages, students shall be allocated a subject for their Master's thesis. [2]The subject of the Master's thesis and the date it was allocated to the student shall be confirmed by the supervisor and included in the student's records held by the Examinations Committee. [3]The time between the selection of a subject and the submission of the Master's thesis shall not exceed six months; the scope of the subject must be such that the thesis can be completed within this period. [4]The period for the Master's thesis may be extended by way of exception by a maximum of three months upon justified request.

(5) [1]The subject may only be returned once and with good reason and with the approval of the chairperson of the Examinations Committee. [2]Otherwise the Master's thesis shall be graded "nicht ausreichend" (unsatisfactory; 5.0) if the subject is returned; it shall be regarded as rejected. [3]Sentence 2 shall apply accordingly if the Master's thesis is not submitted on time.

(6) [1]The Master's thesis shall usually be written in English; in exceptional cases, it can be written in German on the student's request and with the supervisor's approval. [2]The chairperson of the Examinations Committee shall decide whether to grant the student's request. [3]The Master's thesis shall contain a summary of findings at the end. [4]The design of the title page shall follow the template provided by the Examinations Committee. [5]The Master's thesis shall include a declaration from the student confirming that the thesis is an original work and that no other sources or materials than the ones listed were used. [6]One bound copy and one electronic, machine-readable copy each shall be submitted to the supervisor and the library of the Department of Physics ("Gruppenbibliothek Physik"); confirmation that the thesis has been submitted, stating the date of submission, and a copy of the title page shall be submitted to the Examinations Office. [7]In order to meet the deadline, the final version of the Master's thesis can be

submitted by making it available in electronic form (usually as a PDF file) to the Chairperson of the Examination Committee; it must then be submitted to the supervisor and to the library in accordance with sentence 6 as soon as possible. [8]If the Master's thesis is not submitted in time, it shall be graded "nicht ausreichend" (unsatisfactory; 5.0); it shall be regarded as rejected.

(7) [1]If the thesis is rejected or if it is considered to have been rejected, it may be repeated once; a second repetition shall not be permitted. [2]The student shall ensure that they receive a new subject for the repetition of the thesis within two months following the announcement of the rejection for which the contents of the already completed modules "Specialization phase" and "Project planning and preparation" can be used; otherwise the Master's thesis shall be regarded as having been failed at the final attempt. [3] Paragraph 1, paragraph 2 sentence 2, and paragraphs 3 to 6 shall apply accordingly in the case of a repetition.

(8) [1]Upon the recommendation of the two reviewers, the Examinations Committee may allow the student to submit a revised version of the Master's thesis within a deadline to be determined by the Examinations Committee of one month after the original thesis is returned irrespective of the rules for resitting examinations stipulated in paragraph 7. [2]If the Master's thesis is rejected on the basis of fraud or plagiarism it may not be revised. [3]As a rule, the reviewers of the first version are responsible for evaluating the revised version, but the Examinations Committee may approve and stipulate exceptions.

(9) Section 31 paragraphs 5, 9, 10 and 12 shall apply accordingly.

(10) In calculation of the module grades, the Master's thesis has a weighting of 5/6 and the Master's colloquium has a weighting of 1/6.

Section 44 Resitting Examinations, Changing Modules

Section 32 shall apply to resitting examinations and changing modules.

2. Examination Subjects in the Master's Degree Program

Section 45 Structure of the Master's Degree Program

(1) [1]Students shall successfully complete modules worth a minimum of 120 ECTS credits to pass the Master's examination. [2]The degree program comprises compulsory modules (90 ECTS credits), elective modules (20 ECTS credits) and free electives (10 ECTS credits) pursuant to **Appendix 4** as well as the following provisions. [3]Deviating provisions for the Master's examination in the research specialization are stipulated in **Appendix 5** and Section 50. [3]During the first two semesters ("specialization phase") of the Master's degree program, students shall acquire specialized knowledge in chosen areas of physics. [4]In semesters 3 and 4 ("research phase"), students work independently on a research project, the results of the project are explored in the Master's thesis and presented, discussed and placed in a wider physics-related context during the Master's colloquium. [5]The modules *Specialization phase* and *Project planning and preparation* are intended to prepare students for the Master's thesis; their content reflects this.

(2) Section 33 (2) shall apply accordingly.

Section 46 Compulsory Modules of the Master's Degree Program

[1]Students shall successfully complete compulsory modules in the Master's degree program worth a minimum of 90 ECTS credits to pass the Master's examination. [2]These modules are:

1. at least one of the Advanced experimental physics modules
2. at least one of the Advanced theoretical physics modules
3. the modules Advanced lab courses and projects 1 and 2
4. the module Specialization phase
5. the module Project planning and preparation
6. the module Master's thesis including Master's colloquium.

[3]In the research specialization, at least 95 ECTS credits must be completed in the compulsory modules, with the Advanced lab courses and projects module (sentence 2 (3)) being replaced by two Research-oriented projects modules, and the Research seminar module is also compulsory. [4]The following can be chosen as Advanced experimental physics modules pursuant to sentence 2 (1)

- Lasers, atomic physics and quantum optics (EV-A),
- Particle and astroparticle physics (EV-B)
- Solid state physics (EV-C).

[5]The following can be chosen as Advanced theoretical physics modules

- Advanced quantum mechanics (TV-A)
- Advanced solid state physics (TV-B).

[6]The Examinations Committee can approve further options for the EV and TV modules.

Section 47 Elective Subjects (Elective Physics Subjects and Elective Non-Physics Subjects)

(1) [1]The elective subjects are divided into the elective physics subjects and the elective non-physics subjects. [2]Students must complete elective modules worth a total of at least 20 ECTS credits for the regular Master's degree program or the research specialization.

(2) [1]In the elective physics subjects, students acquire specialized and interdisciplinary knowledge in physics-related subjects of their choice; they shall successfully complete modules worth a minimum of 10 ECTS credits, among them one physics seminar in the regular Master's degree program. [2]Section 36 (2) sentences 3 to 6 shall apply accordingly. [3]The scope and ECTS credits of individual modules may deviate from the information given in **Appendix 4** or **5**. [4]The module handbook lists the modules that count as elective physics modules.

(3) [1]In the **elective non-physics subjects**, students may acquire specialized knowledge in a physics-related subject of which they already have fundamental knowledge or fundamental knowledge in another subject. [2]Section 36 (3) sentences 7 and 8 shall apply accordingly.

Section 48 Free Electives

(6) [1]The minimum of 110 ECTS credits required according to Sections 46 and 47 shall be made up to the 120 ECTS credits necessary for completion of the Master's degree through additional, freely chosen modules from the compulsory and elective subjects.

Appendix 49: Specializations

(1) [1]The Master's degree program in Physics can be taken with a specialization corresponding to the current main research focus areas at the Department of Physics. [2]Specializations currently offered are:

1. Astrophysics and astroparticle physics
2. Condensed matter physics
3. Optical sciences
4. Physics in life sciences
5. Quantum technologies
6. Theoretical physics.

[3]The Examinations Committee may approve further specialization options. [4]Students who choose a specialization concentrate on this in the specialization phase and choose a relevant topic in the research phase, allowing them to acquire extensive knowledge and skills in the respective area of physics that make them particularly suited for completing a doctoral degree in that area or for taking on a challenging position in research and development. [5]For the specialization in Astrophysics and astroparticle physics, this would include positions in areas such as measurement technology for rapid processes, artificial intelligence and information technology for distributed systems. [6]For the specialization in Condensed matter physics, this would include positions in areas such as the semiconductor industry, materials development and mechanical and automotive engineering. [7]For the specialization in Optical sciences, this would include activities in areas such as optics, information technology and photonics. [8]Students who choose the specialization Physics in life sciences are qualified for working in the area of medical engineering and areas where physics and life sciences overlap. [9]The specialization Quantum technologies lays the foundation for professions in the application of quantum mechanical processes, for example in information and communications technology, data processing and sensor technology. [10]The Theoretical physics specialization focuses on activities in areas such as system analysis, risk management and data processing.

(2) [1]In order to complete the Master's degree program with one of these specializations, at least 30 ECTS credits must be acquired from modules which are assigned to this specialization in the module handbook. [2]The topic of the research phase also has to relate to the specialization.

(3) If the Master's degree program is completed successfully pursuant to (1) and (2), the student can request the following addition to the degree certificate: 'Focus on <specialization>', with <specialization> being replaced with the specialization according to (1).

Section 50 Research Specialization

(1) [1]As part of the research specialization in the Master's degree program, compulsory modules pursuant to Section 46 (3) and elective modules pursuant to Section 47 must be taken. [2]From the two Research-oriented project modules, one must be chosen from Experimental physics and one from Theoretical physics; the Examinations Committee shall have the right to grant and arrange exceptions. [3]A further Study workshop module shall be taken instead of the module Physics seminar. [4]As part of the Project planning and preparation module (FFO-2), students work on a concept for a research proposal for the topic of the research phase in addition to the content of the module FO-2. [5] See **Appendix 5** for the structure of the study plan. [6]Section 39 (1)(6) shall apply accordingly. [7]Due to the specific subject skills that must be acquired as part of the learning

outcomes of the consecutive degree program as defined in the module description, each module may only count once.

(2)[1]For admission to the research specialization at the beginning of the Master's degree program, the following conditions must be met in addition to successful completion of the qualification assessment process pursuant to **Appendix 1:**

1. Students must have either completed a Bachelor's degree program including the research specialization pursuant to these degree program and examination regulations or have achieved the grade "very good" (grade 1.5 or higher) or a comparable grade in the degree qualifying them for starting a Master's degree program.
2. [1]Students without a Bachelor's degree including a research specialization pursuant to these degree program and examination regulations must provide proof of the following:
   a) completed achievements pursuant to Section 39 (3)(1)(2)(1)
   b) an in-depth knowledge of atomic-molecular physics, nuclear and particle physics and solid state physics in experimental physics
   c) an in-depth knowledge of quantum mechanics and in either electrodynamics or statistical physics; basic knowledge in the other one of these two areas in theoretical physics
   d) experience gained through independently carrying out practical experiments or projects in modern physics
   e) a completed research project equivalent in scope and level to the Bachelor's thesis according to these degree program and examination regulations.

   [2]If achievements pursuant to sentence 1 a) to d) are missing but which can be compensated for, the Admissions Committee may allow admission to the research specialization under the condition that proof of further achievements worth up to a maximum of 20 ECTS credits and to be determined by the Admissions Committee be submitted at the latest within one year of taking up studies for the research specialization. [3]Admission is granted subject to the condition that proof is submitted in good time. [4]If the conditions are not met, students continue their studies in the standard Master's degree program in Physics and any existing achievements from the research specialization are recognized.
3. [1]Applicants who have not already completed the research specialization during the Bachelor's degree and have an average grade below 1.5 shall credibly show that they are suited to taking a degree program with a strong research focus, are particularly motivated and talented and are prepared to commit to dedicate extra effort to completing their research specialization in the Master's degree program. [2]In particular, they should be given the opportunity to discuss their research-oriented activities and achievements in the selection interview, even if they were gained outside university.

[2]The requirements according to sentence 1 (1) are determined on the basis of the documents submitted for the Master's application; whether the requirements according to sentence 1 (2) and (3) are met is determined in consideration of these documents and in a selection interview, for which Section 39 (5) applies accordingly.

(3) [1]The application for admission to the research specialization shall be submitted with the application for admission to the regular Master's degree program in Physics. [2]Section 39 paragraph 2, paragraph 4 sentence 2 and paragraph 6 shall apply accordingly.

(4) [1]If the student decides to discontinue the research specialization, they shall be entitled to transfer back to the regular Master's degree program in Physics without having

to fear any disadvantages. [2]The following equivalences shall apply in the Master's degree program:

1. The Research seminar (FS), or one module from Study workshop (ST) shall replace the Physics seminar (PS) module;
2. The modules Physics elective course (PW) and other Study workshop (ST) modules are accredited in full as elective physics subjects;
3. One Research-oriented project module replaces one Advanced lab courses and projects module;
4. If students change to the regular Master's degree program in Physics after commencing the research phase, the Module Project planning and preparation (FFO-2) replaces the relevant FO-2 module.

[3]The decision shall be taken by the Examinations Committee in cases of doubt.

Part III: Transitional and Final Provisions

Section 51 Legal Validity

(1) [1]These examination regulations shall come into effect on August 1, 2023. [2]They shall apply to all students who start the Bachelor's or Master's degree program in Physics in the winter semester 2023/2024 or later. Notwithstanding sentence 2, the research specialization for the Master's degree program can be chosen as of summer semester 2024. [4]Notwithstanding sentences 2 to 4, the application deadlines in **Appendix 1** shall apply to students applying for a Master's degree program as of summer semester 2024; until that time, the provisions stipulated in the regulations stated in paragraph (2) (1) shall continue to apply.

(2) [1]Students who are currently studying under the previously valid degree program and examination regulations for the Bachelor's and Master's degree programs in Physics and the Elite degree program in Physics with Integrated Doctoral Program at the Faculty of Sciences at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – BMPO/Physics – dated September 7, 2007, last amended by statute of August 3, 2020, shall be examined according to those regulations. [2]The degree program and examination regulations mentioned in sentence 1 shall become invalid as of September 30, 2027. [3]Examinations pursuant to the degree program and examination regulations stated in sentence 1 will be offered for the last time for the Bachelor's degree program in summer semester 2027 and for the Master's degree program in winter semester 2026.

(3) [1]The first amendment statute shall come into effect on October 1, 2024. [2]It applies to all examinations (first, second, and third attempts) in the examination period winter semester 2024/2025 and later. [3]For examinations from previous examination periods, the regulations in BMPO/Physics dated July 31, 2023, shall apply.

Part IV: Appendices

Appendix 1: Qualification Assessment Process According to Section **40**

(1) [1]The qualification assessment process shall be carried out as necessary, but at least once per semester. [2]In the interest of facilitating a prompt continuation of studies, those who are about to complete their Bachelor's degree program shall also be entitled to participate in this qualification assessment process (see Section 40 (4)).

(2) [1]Applications for the qualification assessment process must be submitted via the FAU application portal during a time period published on the degree program's website pursuant to sentences 2 and 3. [2]Applications for the Master's degree program can be submitted either between September 15 and November 30 of each year or from October 15 of one year until January 15 of the following year. [3]Applications for the winter semester can be submitted between February 15 and May 31 each year or from April 15 until July 15 each year. [4]The start and end dates for the application period specified in sentences 2 and 3 may also be combined in other ways; selecting different start and end dates is not possible. [5]The following documents must be submitted with the application:

1. The final academic record proving that the applicant holds a university degree according to Section 40 (1)(2)(1) (final academic record, transcript of records, diploma supplement or comparable documents)
2. In the case of Section 40 (4), a transcript of records or a grade transcript of achievements completed to date as well as confirmation that the applicant has been admitted to the examinations concluding the Bachelor's degree program within the current examination period; for Bachelor's students according to these examination regulations, the registration for the Bachelor's thesis shall suffice
3. English CV in tabular form
4. Proof of English language skills at CEFR (Common European Framework of Reference for Languages) level B2 – Vantage or upper intermediate, in particular
   - a school leaving certificate or a certificate issued by the school providing evidence that English language courses have been taken at school up until a level equivalent to B2 according to the Common European Framework of Reference for Languages (CEFR) or
   - a certificate indicating that the applicant has successfully passed the Test of English as a Foreign Language (TOEFL), attaining at least 85 points in the iBT test
   - International English Language Testing System (IELTS) 5.0 or above);
   - Applicants who have completed their university entrance qualifications or their first degree in English are not required to provide proof of proficiency in English.

[6]An extended deadline for later submission of the documents described in sentence 2 may be set.

(3) Applications not submitted in due form or time shall lead to exclusion from the qualification assessment process.

(4) [1]The qualification assessment process shall consist of a preselection followed by a selection interview for those applicants admitted to this stage. [2]The admissions committee may transfer the task of conducting the preselection to individual members.

(5) [1]Particularly well-qualified applicants are accepted onto the Master's degree program on the basis of this preselection alone. [2]Applicants shall be considered as particularly qualified if they have a degree according to Section 38 (1)(2)(1) in conjunction with paragraph 3 with a minimum grade of 2.5 (“gut”/good); in the case of degrees which use a different grading system, Section 13 (3) sentences 1 to 3 shall apply accordingly.

(6) [1]Applicants who cannot be admitted to the Master’s degree program on the basis of the preselection alone and whose previous average grade is between 2.51 and 3.00 shall be invited to a selection interview; the remaining applicants shall not be admitted to the selection interview and shall be considered as rejected pursuant to (7). [2]The selection interview is intended to indicate whether the applicant possesses the required technical and methodological expertise and can be expected to carry out independent scientific work in a more research-oriented degree program. [3]The selection interview shall cover the following equally weighted criteria:

1. Sound knowledge of physical conservation laws, equations of motion and how to solve them, electromagnetic fields and their phenomena, and the mathematical foundations of physics
2. Good knowledge of the physical properties of elementary particles, atomic nuclei, and atoms, as well as many-body systems and condensed matter including the fundamental experimental methods required to characterize them
3. Knowledge of the foundations of and methods used in theoretical physics, in particular mechanics, classical field theory, quantum mechanics and statistical physics

[4]The selection interview shall have a duration of approximately 30 minutes. [5]With the applicant’s consent, the selection interview may also be carried out via video call. [6]The date of the selection interview shall be announced at least one week in advance. [7]If an applicant should be unable to attend the selection interview due to reasons beyond their control, a second date may be set upon justified request up until two weeks before the start of the lecture period. [8]The selection interview shall be carried out by two university lecturers in main or secondary employment pursuant to Section 19 (1) **BayHIG** from the Physics degree program, who work at FAU as their main occupation (selection committee) pursuant to Section 53 (4) BayHIG who are appointed by the admissions committee. [9]The selection interview shall be rated as “bestanden” (pass) or “nicht bestanden” (fail). [10]If the applicant passes the selection interview, the admissions committee shall decide at the recommendation of the selection committee whether admission shall be granted subject to conditions according to Section 38 (3). [11]Records shall be kept of the selection interview.

(7) [1] Applicants not admitted to the Master’s degree program after the qualification assessment process shall receive a rejection notification including reasons and information on the legal remedies available. [2]It will not be possible to repeat the qualification assessment process on the basis of the documentation submitted.

(8) Applicants shall bear their own costs incurred as a result of taking part in the qualification assessment process.

(9) Confirmation of passing the qualification assessment process shall remain valid indefinitely, provided the Master’s degree program has not been changed significantly.

Appendix 2: Degree Program Structure of the Bachelor's Degree Program in Physics BSc

[1]The Bachelor's degree program in Physics generally comprises the modules listed in Table 1. [2]Students shall successfully complete a selection of these according to the requirements stipulated in Sections 33, 34, 36-38. [3]The Computational methods in physics module may be replaced by one of the elective modules. [4]The elective and key qualification modules may deviate in ECTS credits, SWS, allocation to semesters or allocation to physics or non-physics elective areas from the details given in the table below; further details are stipulated in the module handbook. [5]The Examinations Committee may also admit further ungraded modules for the elective subjects.

Abbreviation	Module name	Teaching units	Module type[1)]	SWS[2)]				ECTS credits Total[3)]	Workload[3)] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
EP-12	Experimental physics 1+2	Experimental physics 1: Mechanics	C	5	2	1		15	7.5						Written examination (120 min) and ungraded practical achievement pursuant to Section 20	0
		Experimental physics 2: Thermodynamics and electrodynamics		5	2	1				7.5						
RMP	Computational methods in physics	Computational methods in physics, part 1	E	(2)				(5)	(2.5)						Ungraded written examination (90 min)	0
		Computational methods in physics, part 2		(2)						(2.5)						
MP-A	Mathematics A for physics students		C_	4	4			10	10						Written examination (120 min) and practical achievement (ungraded)	0
DV	Data processing for physics		C	2		2		5	5						Practical achievement Pursuant to Section 20	0
NW-1	Non-physics elective 1 pursuant to Section 36 (3) sentences 3-5	Non-physics elective 1 Part 1	E	[4), 5)]				10	7.5						As stipulated in subject's regulations[4)]	0
		Non-physics elective 1 Part 2								2.5						
TP-1	Theoretical physics 1: Mechanics		C	4	3			10		10					Written examination (120 min)	0
MP-B	Mathematics B for physics students[6)]		C	4	4			10		10					Written examination (120 min) and tutorial achievement (ungraded)	0
EP-34	Experimental physics 3+4	Experimental physics 3: Optics and quantum phenomena	C	4	2			15			7.5				Oral examination (30 min)	1

Abbreviation	Module name	Teaching units	Module type[1]	SWS[2]				ECTS credits Total[3]	Workload[3] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
		Experimental physics 4: Atomic and molecular physics		3	2							7.5				
GP	Introductory laboratory course		C			6		5			5				Ungraded practical achievement pursuant to Section 20	0
TP-2	Theoretical physics 2: Electrodynamics[6]		C	4	3			10			10				Written examination (120 min)	1
MP-C	Mathematics C for physics students[5]		C	(5)	(2)			(10)			(10)				Written examination (120 min)	0
SQ	Key qualification pursuant to Section 37	[4]	K	[4]				5			2.5	2.5			Ungraded course achievement as stipulated in subject's regulations[4]	0
NW	Non-physics elective pursuant to Section 36 (3)	[4]	E	[4]				5			5				As stipulated in subject's regulations[4]	1
PE-A	Physics experiments A	Electronics laboratory course	C	1		7		10				10			Presentation of the evaluation of an experiment (50%) and practical achievement pursuant to Section 20 (50%)	1
TP-3	Theoretical physics 3: Quantum mechanics[7]		C	4	3			10				10			Written examination (120 min)	1
EP-5	Experimental physics 5: Nuclear and particle physics[8]		C	3	2			7.5					7.5		Written examination (90 min)	1
EP-6	Experimental physics 6: Solid state physics[8]		C	(3)	(2)			(7.5)					(7.5)		Written examination (90 min)	1
TP-4	Theoretical physics 4: Statistical physics[7]		C	(4)	(3)			(10)					(10)		Written examination (120 min)	1
PE-B	Physics experiments B	Practical project or practical course	C			8		5					5		Practical achievement pursuant to Section 20[4]	0
TP-K	Colloquium in Theoretical physics	Synopsis of theoretical physics	C		1		1	7.5					7.5		Oral examination (30 min)	1
PW	Physics elective pursuant to Section 36 (2)	[4]	E	[4]				12.5					5	7.5	As stipulated in subject's regulations[4]	1
PS	Physics seminar		E				2	5					5		Presentation (45 min) followed by discussion pursuant to Section 19	1
PE-C	Physics experiments C	Advanced laboratory course	C			10		7.5						7.5	Practical achievement pursuant to Section 20 (7 experiments)	1

Abbre-viation	Module name	Teaching units	Module type[1]	SWS[2]				ECTS credits Total [3]	Workload [3] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
BA	Bachelor's thesis	Bachelor's thesis	C					15						12.5	see Section 31	2
		Bachelor's colloquium					2							2.5		
Total SWS[9] and ECTS credits				56	37	36	10	180	30	30	30	30	30	30		
				139												

1) C = compulsory subjects, E = elective subjects; K = key qualifications
2) SWS = semester hours; L = lecture; T = tutorial; P = practical; S = seminar. The values in brackets were not taken into account when calculating the totals.
3 The ECTS credits in brackets were not taken into account when calculating the workload.
4) See Sections 36 and 37. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable **(degree program and) examination regulations** and/or the module handbook.
5) The ECTS credits and SWS for module NW-1 are given here for the option "computer science". Details may vary for other variants.
6) At least two of the three modules MP-A to MP-C must be completed successfully.
7) At least two of the three modules TP-2 to TP-4 must be completed successfully.
8) At least one of the two modules EP-5 and EP-6 must be completed successfully.
9) When calculating semester hours (SWS), the total for module NW-1 was based on 5 lectures + 2 tutorials + 1 practical (computer science), for the key qualification modules on a total of 4 lectures, for the physics elective modules (PW) on 2 seminars and 2 tutorials and for the non-physics elective modules (NW) on 2 lectures and 2 tutorials for every 5 ECTS credits.

Appendix 3: Bachelor's Degree Program in Physics BSc – Research Specialization

[1]The Bachelor's degree program in Physics with the research specialization generally comprises the modules listed in **Appendix 3**. [2]Students shall successfully complete a selection of these according to the requirements stipulated in Sections 33, 34, 36-38. [3]The Computational methods in physics module may be replaced by one of the elective modules. [4]The elective and key qualification modules may deviate in ECTS credits, SWS, allocation to semesters or allocation to physics or non-physics elective areas from the details given in the table below; further details are stipulated in the module handbook. [5]The Examinations Committee may also admit ungraded modules for the elective subjects.

Abbre-viation	Module name	Teaching units	Module type[1)]	SWS[2)]				ECTS credits Total [3)]	Workload [3)] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
EP-12	**Experimental physics 1+2**	**Experimental physics 1: Mechanics**	**C**	5	2	1		**15**	7.5						Written examination (120 min) and ungraded practical achievement pursuant to Section 20	0
		Experimental physics 2: Thermodynamics and electrodynamics		5	2	1				7.5						
RMP	**Computational methods in physics**	**Computational methods in physics, part 1**	**E**	(2)				**(5)**	(2.5)						Ungraded written examination (90 min)	0
		Computational methods in physics, part 2		(2)						(2.5)						
MP-A	**Mathematics A for physics students [6)]**		**C**	4	4			**10**	10						Written examination (120 min) and practical achievement (ungraded)	0
DV	**Data processing for physics**		**C**	2		2		**5**	5						Practical achievement pursuant to Section 20	0
NW-1	**Non-physics elective 1 pursuant to Section 36 (3) sentences 3-5**	**Non-physics elective 1 Part 1**	**E**	[4.5)]				**10**	7.5						As stipulated in subject's regulations [4)]	0
		Non-physics elective 1 Part 2								2.5						
TP-1	**Theoretical physics 1: Mechanics**		**C**	4	3			**10**		10					Written examination (120 min)	0
MP-B	**Mathematics B for physics students [6)]**		**C**	4	4			**10**		10					Written examination 120 min and practical achievement (ungraded)	0

Abbre-viation	Module name	Teaching units	Module type[1]	SWS[2]				ECTS credits Total [3]	Workload [3] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
EP-3	**Experimental physics 3**	**Optics and quantum phenomena**	**C**	4	2			**7.5**			7.5				Oral examination (30 min)	1
GP	**Introductory laboratory course**		**C**			6		**5**			5				Ungraded practical achievement pursuant to Section 20	0
TP-2	**Theoretical physics 2: Electrodynamics [6]**		**C**	4	3			**10**			10				Written examination (120 min)	1
MP-C	**Mathematics C for physics students [5]**		**C**	(5)	(2)			**(10)**			(10)				Written examination (120 min)	0
SQ	**Key qualification pursu-ant to Section 37**	[4]	**K**	[4]				**2.5**			2.5				Ungraded course achievement as stipulated in subject's regula-tions [4]	0
NW	**Non-physics elective pursuant to Section 36 (3)**	[4]	**E**	[4]				**10**			5			5	As stipulated in subject's regula-tions [4]	1
IK-1	**Integrated course 1**	**Quantum theory, quan-tum optics and nuclear physics**	**C**	8	5			**15**				15			Oral examination (45 min)	1
PE-A	**Physics experiments A**	**Electronics laboratory course**	**C**	1		7		**10**				10			Presentation of the evaluation of an experiment (50%) and Practical achievement pursuant to Section 20 (50%)	1
PE-B	**Physics experiments B**	**Practical project**	**C**			8		**5**				5			Practical achievement pursuant to Section 20	0
IK-2	**Integrated course 2**	**Statistical mechanics and condensed matter physics**	**P**	8	5			**15**					15		Oral examination (45 min)	1
FP	**Research-oriented project**		**C**			10		**5**					5		Final report (approx. 20 pages) pursuant to Section 20 [7]	1
PW	**Physics elective pursu-ant to Section 36 (2)**	[4]	**E**	[4]				**10**					5	5	As stipulated in subject's regula-tions [4]	1
ST-1	**Study workshop 1**	**Workshop with presen-tation**	**C**				2	**5**					5		Presentation (30 min) on Module FP pursuant to Section 19	1

Abbre-viation	Module name	Teaching units	Module type[1)]	SWS[2)]				ECTS credits Total [3)]	Workload [3)] per semester in ECTS credits						Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4	5	6		
FEP	**Experimental physics in the research specializa-tion**	**Nuclear and particle physics**	**C**	4	2			**7.5**						7.5	Oral examination (30 min)	1
FBA	**Bachelor's thesis**		**C**					**12.5**						12.5	see Section 31	2
Total SWS[7)] and ECTS credits				**64**	**42**	**36**	**6**	**180**	**30**	**30**	**30**	**30**	**30**	**30**		
				148												

1) C = compulsory subjects, E = elective subjects, K = key qualifications
2) SWS = semester hours; L = lecture; T = tutorial; P = practical; S = seminar. The values in brackets were not taken into account when calculating the totals.
3 The ECTS credits in brackets were not taken into account when calculating the workload.
4) See Sections 36 and 37. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable **(degree program and) examination regulations** and/or the module handbook.
5) The ECTS credits and SWS for module NW-1 are given here for the option 'computer science'. Details may vary for other modules.
6) At least two of the three modules MP-A to MP-C must be completed successfully.
7) When calculating semester hours (SWS), the total for module NW-1 was based on 5 lectures + 2 tutorials + 1 practical (computer science), for the key qualification (SQ) modules on a total of 4 lectures, for the physics elective (PW) modules on 2 seminars and 2 tutorials and for the non-physics elective (NW) modules on 2 lectures and 2 tutorials for every 5 ECTS credits.

Appendix 4: Degree program structure for Master's degree program inPhysics MSc

[1]The Master's degree program in Physics generally comprises the modules listed in the following table. [2]Students shall successfully complete a selection of these according to Sections 45-48. [3]**Appendix 2** sentences 4 and 5 shall apply accordingly. [4]The degree program is structured in such a way that it is possible to commence in either summer semester or winter semester. [5]The elective and key qualification modules may deviate in ECTS credits, SWS, allocation to semesters or allocation to physics or non-physics elective areas from the details given in the table below; further details are stipulated in the module handbook. [6]The Examinations Committee may also admit ungraded modules for the elective subjects.

Abbreviation	Module name	Teaching units	Module type[1)]	SWS[2)]				ECTS credits Total[3)]	Workload[3] per semester in ECTS credits				Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4		
EV-1	**Advanced experimental physics 1[5)]**	**EV-A, EV-B or EV-C (see Section 46 (4))**	**P**	4	3			**10**	10				For EV-B and EV-C: Oral examination (30 minutes); for EV-A: Written examination (120 min)	1
TV-1	**Advanced theoretical physics 1[6)]**	**TV-A or TV-B (see Section 46 (5))**	**C**	(4)	(3)			**(10)**	(10)				Written examination (120 min)	1
WP	**Advanced lab courses and projects**	**Advanced lab course [7)]**	**C**			14		**10**	5	5			Practical achievement pursuant to Section 20 (5 experiments)	1
PW	**Physics elective course pursuant to Section 47 (2)**	[4)]	**E**	[4)]				**20**	10	10			As stipulated in subject's regulations [4)]	1
NW	**Elective course (other than physics) pursuant to Section 47 (3)**	[4)]	**E**	[4)]				**5**	5				As stipulated in subject's regulations [4)]	1
EV-2	**Advanced experimental physics 2[5)]**	**EV-A, EV-B or EV-C (see Section 46 (4))**	**C**	(4)	(3)			**(10)**		(10)			For EV-B and EV-C: Oral examination (30 minutes); for EV-A: Written examination (120 min)	1
TV-2	**Advanced theoretical physics 2[6)]**	**TV-A or TV-B (see Section 46 (5))**	**C**	4	3			**10**		10			Written examination (120 min)	1
PS	**Physics seminar**		**E**				2	**5**		5			Presentation (45 min) followed by discussion pursuant to Section 19	1

Abbrevi-ation	Module name	Teaching units	Module type[1]	SWS[2]				ECTS cred-its Total [3]	Workload [3] per semester in ECTS credits				Type and scope of the examination	Factor final grade
				L	T	P	S		1	2	3	4		
FO-1	**Specialization phase pursuant to Section 41**		**C**			12		**15**			15		Exploring the topic of the research phase (approx. 450 hours, ungraded)	0
FO-2	**Project planning and preparation pursuant to Section 41**		**C**			12		**15**			15		Preliminary work on research project (approx. 450 hours, ungraded)	0
FO-3	**Master's thesis**	**Master's thesis**	**C**					**30**				25	see Section 41	2
		Master's colloquium					2					5		
Total SWS[8] and ECTS credits				**10**	**16**	**38**	**12**	**120**	**30**	**30**	**30**	**30**		
				76										

1) C = compulsory subjects; E = elective subjects
2) SWS = semester hours; L = lecture; T = tutorial; P = practical; S = seminar.
3 The ECTS credits in brackets were not taken into account when calculating the workload.
4) see Section 43. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable **(degree program and) examination regulations** and/or the module handbook.
5) At least one of the modules EV-1 and EV-2 must be completed successfully.
6) At least one of the modules TV-1 and TV-2 must be completed successfully.
7 As well as the Advanced lab course, there are other options, such as Advanced projects in computational physics.
8) When calculating semester hours (SWS), the total for the physics elective (PW) modules was based on 2 seminars and 2 tutorials and for the non-physics elective (NW) modules on 2 lectures and 2 tutorials for every 5 ECTS credits.

Appendix 5: Degree program structure for Master's degree program in Physics MSc – Research Specialization

[1]The Master's degree program in Physics generally comprises the modules listed in the following table. [2]Students shall successfully complete a selection of these according to Sections 45-48. [3]**Appendix 2** sentences 4 and 5 shall apply accordingly. [4]The degree program is structured in such a way that it is possible to commence in either summer semester or winter semester. [5]The elective and key qualification modules may deviate in ECTS credits, SWS, allocation to semesters or allocation to physics or non-physics elective areas from the details given in the table below; further details are stipulated in the module handbook. [6]The Examinations Committee may also admit ungraded modules for the elective subjects.

Abbreviation	Module name	Teaching units	Module type[1)]	SWS[2)]				ECTS credits Total [3)]	Workload [3] per semester in ECTS credits				Type and scope of the of examination/course achievement	Factor final grade
				L	T	P	S		1	2	3	4		
EV-1	**Advanced experimental physics 1[5)]**	**EV-A, EV-B or EV-C (see Section 46 (4))**	**C**	4	3			**10**	10				For EV-B and EV-C: Oral examination (30 minutes); for EV-A: Written examination (120 min)	1
TV-1	**Advanced theoretical physics 1[6)]**	**TV-A or TV-B (see Section 46 (5))**	**C**	(4)	(3)			**(10)**	(10)				Written examination (120 min)	1
FP	**Research-oriented project**		**C**			20		**10**	5	5			Final report (approx. 20 pages) pursuant to Section 20	1
PW	**Physics elective course pursuant to Section 47 (2)**	[4)]	**E**	[4)]				**15**	15				As stipulated in subject's regulations [4)]	1
EV-2	**Advanced experimental physics 2[5)]**	**EV-A, EV-B or EV-C (see Section 46 (4))**	**C**	(4)	(3)			**(10)**		(10)			For EV-B and EV-C: Oral examination (30 minutes); for EV-A: Written examination (120 min)	1
TV-2	**Advanced theoretical physics 2[6)]**	**TV-A or TV-B (see Section 46 (5))**	**C**	4	3			**10**		10			Written examination (120 min)	1
FS	**Research seminar**	**Seminar on topic of current research**	**C**				2	**5**		5			Presentation (45 min) followed by discussion pursuant to Section 19	1

Abbreviation	Module name	Teaching units	Module type[1]	SWS[2]				ECTS credits Total[3]	Workload[3] per semester in ECTS credits				Type and scope of the of examination/course achievement	Factor final grade
				L	T	P	S		1	2	3	4		
NW	**Elective course (other than physics) pursuant to Section 47 (3)**	[4]	**E**	[4]				**5**		5			As stipulated in subject's regulations [4]	1
ST-2	**Study workshop 2**	**Workshop with presentation**	**C**				2	**5**		5			Presentation (30 min) on one FP module or the Bachelor's thesis pursuant to Section 19	1
FO-1	**Specialization phase pursuant to Section 35**		**C**			12		**15**			15		Exploring the topic of the research phase (approx. 450 hours, ungraded)	0
FFO-2	**Project planning and preparation phase pursuant to Section 35 in conjunction with Section 40 (4)**		**C**			12		**15**			15		Preliminary work for carrying out the research project and drafting an application concept (approx. 450 hours, ungraded)	0
FO-3	**Master's thesis**	**Master's thesis**	**C**					**30**				25	see Section 41	2
		Master's colloquium					2					5		
Total SWS[7] and ECTS credits				**10**	**14**	**44**	**12**	**120**	**30**	**30**	**30**	**30**		
				80										

1) C = compulsory subjects; E = elective subjects
2) SWS = semester hours; L = lecture; T = tutorial; P = practical; S = seminar.
3 The ECTS credits in brackets were not taken into account when calculating the workload.
4) see Section 43. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable **(degree program and) examination regulations** and/or the module handbook.
5) At least one of the modules EV-1 and EV-2 must be completed successfully.
6) At least one of the modules TV-1 and TV-2 must be completed successfully.
8) When calculating semester hours (SWS), the total for the physics elective (PW) modules was based on 2 seminars and 2 tutorials and for the non-physics elective (NW) modules on 2 lectures and 2 tutorials for every 5 ECTS credits.