Published in the Official Bulletin I no. 21 dated 04.07.2012, p. 1126, last amended by Official Bulletin I no. 56 dated 28.10.2016, p. 1543

This translation is provided solely as a courtesy to international students and applicants. Reliance in law may only be placed upon the official German version of these Regulations.

Inter-Faculty regulations:

Upon resolution by the faculty councils of the Faculty of Chemistry dated 18.11.2015 and 09.12.2015, the Faculty of Physics dated 09.12.2015 and 06.01.2016 and upon statement by the Senate dated 13.01.2016, the presidential board of Georg-August-Universität Göttingen did, on 18.10.2016, approve the sixth amendment of the doctoral regulations for the mathematics and natural sciences graduate school – Georg-August University School of Science (GAUSS) (§§ 44 section 1 sentence 2, 9 section 3 sentence 1 NHG in the version contained in the announcement dated 26.02.2007 (Nds. GVBl. p. 69), last amended by Article 1 of the Act dated 15.12.2015 (Nds. GVBl. p. 384); § 41 section 2 sentence 2 NHG, § 37 section 1 sentence 3 no. 5 letter b) NHG).

Inter-faculty regulations:

On 03.04.2012 and 19.06.2012, following the resolution passed by the faculty council of the Faculty of Mathematics and Computer Science dated 08.02.2012, the Faculty of Physics dated 13.07.2011, the Faculty of Chemistry dated 13.07.2011 and 09.05.2012, the Faculty for Geosciences and Geography on 11.07.2011 and the Faculty of Biology on 10.06.2011, and following an official statement by the Senate dated 14.03.2012, the Presidential Board of Georg-August-Universität Göttingen approved the doctoral regulations for the mathematics and natural sciences graduate school – Georg-August University School of Science (GAUSS) (§ 44 section 1 sentence 2 NHG in the version contained in the announcement dated 26.02.2007 (Nds. GVBl. p. 69), amended by Article 1 of the Act dated 20.06.2012 (Nds. GVBl. p. 186); §§ 9 section 3 sentence 1, § 41 section 2 sentence 2 NHG, 37 section 1 sentence 3 no. 5 b) NHG).

Doctoral degree regulations
at the mathematics and natural sciences graduate school
in Georg-August-Universität Göttingen
– Georg-August University School of Science (GAUSS) –

Table of contents

VII. Final provisions

VIII. Appendixes

I. Miscellaneous

§ 1 Purpose of the doctoral degree regulations; scope of validity

(1) The doctoral degree regulations for the mathematics and natural sciences graduate school – Georg-August-University School of Science (GAUSS) – (RerNat-O) provide for the implementation of all doctoral procedures of relevance to mathematics and natural sciences, including the award and the withdrawal of doctorates at Georg-August-Universität Göttingen.

(2) [1]The provisions of this regulation are binding for the structured doctoral degree programmes or doctoral studies (hereafter known jointly as programmes) belonging to the mathematics and natural sciences graduate school – Georg-August University School of Science (GAUSS) – (hereafter: graduate school). The specialist provisions of each programme shall otherwise apply as supplements, as specified in the annexes and if applicable in the supplementary regulations of the doctoral degree programmes enrolled in (hereafter: programme regulations). [2]Contrary or deviating, specialist regulations shall be void unless this regulation specifically permits deviations.

(3) Furthermore, RerNat-O provides for the award of the academic title and the award of honorary doctor of natural sciences (Doctor rerum naturalium honoris causa) at Georg-August-Universität Göttingen.

§ 2 University degree

(1) Georg-August-Universität Göttingen awards the doctoral degree in natural sciences (Dr. rer. net.).

(2) On the application of the doctoral candidate, the title of 'Doctor of Philosophy (Ph.D.)' can be awarded in place of the degree of doctor of natural science (Dr. rer. nat.); in these cases the doctoral certificate and if applicable also the doctoral examination certificate shall carry the suffix 'Division of Mathematics and Natural Sciences' to denote the mathematics and natural sciences focus.

(3) The title as specified under section 1 may only be acquired at Georg-August-Universität Göttingen by means of ordinary doctoral studies conducted in accordance with the provisions of this regulation and the specialist provisions of a programme.

(4) The honorary title of doctor of natural sciences can also be awarded following extraordinary graduation.

§ 3 Responsibilities

(1) The Management Board of the graduate school is responsible for matters pertaining to the graduate school, provided that this regulation or the regulations of the graduate school (hereafter: GAUSS-O) or the specialist provisions applicable to a programme do not designate a different responsibility.

(2) [1]Insofar as a faculty shall be responsible for the management of a programme that is not among the mathematics and natural sciences faculties at Georg-August-Universität Göttingen, the Management Board of the graduate school shall act in place of the Dean's Office or the faculty council. [2]The executive management of the graduate school shall act in place of the dean. [3]Insofar as several programmes have merged to form a separate academic institution, the Management Board of said institution shall act in place of the Dean's Office or the faculty council in the event that the examination committee shall not be defined as the responsible entity in accordance with the specialist provisions of the programme; the executive management of the institution shall act in place of the dean. [4]Insofar as the examination committee shall be responsible in accordance with this regulation, but a body of this nature is not established as specified under the provisions of the GAUSS-O, the Dean's Office shall act in place of the examination committee and the dean shall act in place of the examination committee coordinator; the specialist regulations applicable to a programme may define provisions other than this.

(3) The examination committee in each programme is responsible for safeguarding implementation of the examinations and for ensuring adherence to the provisions of this regulation and the programme regulations; this must be confirmed by the Management Board of the graduate school in the event of inter-faculty programmes and in programmes maintained by associated faculties.

(4) [1]The faculty council of the faculty offering the programme is responsible for introducing the specialist provisions of a programme; in the event that several faculties offer the programme, the faculty council under whose auspices the programme is offered shall be responsible following confirmation by the faculty councils of the other faculties involved. The Management Board of the graduate school must be informed by no later than before publication of the specialist provisions. [3]The specialist provisions of a programme may contain terms pertaining to failures and also supplementary provisions, in particular additional qualifications for entry and the nature and scope of the examination prerequisites.

II. As concerns procedure for doctoral studies

§ 4 Qualifications for entry to doctoral programmes

Acceptance in a programme

(1) [1]The precondition for the admission of an applicant as doctoral candidate in a doctoral programme in accordance with § 1 section 2 is the successful completion of a consecutive master degree programme in a relevant field of mathematics and natural sciences with a standard course length of at least one year and a total study time of at least four years, the successful completion of a degree course relevant to mathematics and natural sciences with a standard course length of at least eight semesters or proof of an equivalent degree at a German university or at a university in a country belonging to the Bologna signatory states. [2]The degree examinations, which are equivalent to the qualifications under sentence 1 and have been passed in a country other than the Bologna Signatory States, require the assessment of equivalence in consideration of the proposals by the Central Office for Foreign Education (ZAB) at the office of the permanent conference of the federal ministers of cultural affairs in Federal Republic of Germany (KMK) for the accreditation and assessment of foreign proof of academic qualification that are laid down at the URL www.anabin.de. [3]The grades of the foreign degree certificates shall be converted to the German grading system. [4]In the event that sentences 2 and 3 should apply, the written thesis in the degree course providing the qualification for entry must satisfy the scientific standards of the mathematics and natural sciences faculties at the University of Göttingen. [5]The examination board shall be responsible for the assessment of degree equivalence as specified in sentence 1.

(2) [1]Unlike in section 1, candidates shall also be qualified for entry insofar as they are enrolled in a master degree course in mathematics or natural sciences, have successfully completed therein a more than insubstantial amount of examination components and whose bachelor degree and also the examination prerequisites in the master degree course to date are outstanding; this shall be the case in particular if a grade average is demonstrated that is among the best ten percent of the accumulated grade average of any year in the respective degree programme. [2]Approval from the members of the faculty council holding doctorates in the faculty in which enrolment shall take place is required for acceptance to the programme; this shall apply accordingly to approval by the responsible examination committee in cases of an institution in accordance with § 3 section 2 sentence 3. [3]As concerns the specialist provisions of a programme that requires particular quality assurance procedures, the Management Board of the graduate school may specify a different procedure than that specified in sentences 1 and 2.

(3) [1]The members of the faculty council holding doctorates in the faculty in which enrolment shall take place may approve the equivalence of a degree in other degree programmes, provided that the applicant is able to prove prior education in a mathematics or natural sciences degree course

deemed equivalent according to scientific standards. [2]The responsible examination committee shall decide on this recognition in the event of an institution as specified under § 3 section 2 sentence 3 or in the event that the faculty is not among the founding faculties at the graduate school.

(4) Sections 1 and 3 shall apply accordingly to a computer sciences programme belonging to the graduate school.

(5) [1]Conditional entry can be granted in the event that individual qualifications for entry are not satisfied. [2]In this case, the as yet incomplete qualifications for entry in a scope of no more than 15 C must be completed retroactively within a period of two semesters following enrolment.

(6) Additional entrance requirement is at least one written declaration by an authorised examining member that he or she shall accept and supervise the applicant in the case of being admitted to the programme as a doctoral candidate.

(7) [1]A further qualification for entry is that no commercial doctoral agency or consulting services was commissioned. [2]Instruction in this respect must be confirmed upon submission of the declaration as specified in appendix 1.

(8) [1]Successful application for admission to a programme shall be confirmed on a form used additionally for submission to the Central Office of Student Affairs for enrolment and shall also be confirmed on also a supervision agreement as signed by the party responsible for the programme and as signed by the dean or the dean of studies at the accepting faculty. [2]In the event that several programmes are merged to form one institution as specified under § 3 section 2 sentence 3, the provisions specified under appendix 11 shall be applied in place of sentence 1. [3]At the same time, the Management Board of the graduate school shall submit to the applicant a check list containing the requirements; this shall be completed over the course of the doctoral studies and must be submitted upon registration to the doctoral examination. [4]In the event that the programme is inter-faculty, the faculty at which enrolment takes place shall be defined as follows:

[5]The thesis committee designated in each case shall rule unanimously on which faculty the doctoral candidate should be assigned to following a hearing with said doctoral candidate and with consideration of the topical focus of the dissertation project. [6]Enrolment shall then take place at this faculty following approval by the member of the Dean's Office responsible in each case; the respective Dean's Office shall define responsibility therein. [7]In the event that a unanimous ruling should prove impossible or in the event that the faculty in question appeals the decision in a reasoned form, assignment shall take place in line with the faculty affiliation of the first supervisor and authorised examiner. [8]Insofar as this shall refer to an institution as specified under § 3 section 2 sentence 3 and unlike sentence 6, enrolment shall only be possible at a mathematics and natural

sciences faculty; unlike in sentence 7, the Management Board of the institution in the meaning of § 3 section 2 sentence 3 shall define assignment in the event that a unanimous ruling is not possible.
(9) Enrolment by, and acceptance of, a doctoral candidate in a programme and at a faculty must be kept on file in the examination management system for the programme together with the starting time of the doctoral studies and any applicable, supplementary provisions; this shall also specify the members of the thesis committee and shall be recorded in the electronic registry of the graduate school.
(10) [1]Applicants address their written applications for acceptance in a programme to the responsible examination committee. [2]Degree certificates as specified under sections 1 and 3 or 4 must be enclosed with the application; proof as specified under section 2 if applicable and a confirmation of supervision in accordance with section 6 must also be enclosed. [3]The examination committee rules on acceptance or rejection of the application. [4]The specialist provisions of each programme may define other details for the applications procedure and additional qualifications for entry into a programme.
(11) An entry regulation shall define in greater detail entry to a doctoral degree programme.

§ 5 Thesis committee

(1) [1]Upon admission and by no later than 4 months following acceptance to the graduate school, the responsible examination committee shall, following a hearing with the doctoral candidate, appoint a thesis committee; this shall be comprised of at least two members, including the supervisor and authorised examiner, who shall most commonly be appointed referee for the dissertation. [2]In the event of an institution as defined under § 3 section 2 sentence 3 or a doctoral degree course, the thesis committee shall be comprised of at least three members, including at least two members as authorised examiners, who most commonly shall be appointed referees for the dissertation. [3]All members of the thesis committee must hold a doctorate; the members of the thesis committee who are authorised examiners must not be in a dependent relationship to each other.
(2) [1]The thesis committee provides support and assistance to the doctoral candidate. [2]The doctoral candidate must provide the thesis committee with a comprehensive, regular, at least annual, written and oral report on the progress in the doctoral project and must also report on examination prerequisites completed to date. [3]The first report shall be submitted six months following enrolment. [4]Each member of the thesis committee shall confirm by signature on the check list submitted to the doctoral candidate upon enrolment in the graduate school that this report was provided.

(3) [1]Should there be an important reason, the examination committee responsible may appoint other suitable persons as supervisors or convene a new thesis committee, subject to application by a member of the thesis committee or the doctoral candidate. [2]An important reason shall be deemed to be in particular any breakdown in the relationship of trust, unless the doctoral candidate shall be responsible for this. [3]The party responsible for the programme shall mediate in the event of conflicts between the supervisors and the doctoral candidate.

§ 6 Scope and nature of the doctoral studies; deception; termination for an important reason

(1) [1]The doctoral candidates are required to complete their research over the course of their doctoral studies. [2]The preliminary topic and work schedule for the research must be agreed between the thesis committee and the doctoral candidate before the start of the doctoral project. [3]Further, doctoral candidates must successfully complete examination prerequisites in a scope totalling at least 20 credits (hereafter C) in accordance with the specialist provisions defined in the programme. [4]No more than 30 C may be demanded.

(2) In addition to the examination prerequisites the doctoral students are required to complete, the doctoral students may also complete other electable components.

(3) In the event that achievements as specified under section 1 sentence 2 are not provided for reasons for which the doctoral student must bear no responsibility, or if the provision of said achievements shall be associated with undue severity, the examination committee shall waive the demand to provide proof of individual achievements by no later than admission to the doctoral examination, subject to application by the doctoral student; a different responsibility may be defined in the specialist sections of a programme.

(4) [1]Examination prerequisites completed on the basis of an agreement between the University of Göttingen, the doctoral candidate and a different university shall be recognised without any assessment of equivalence. [2]Any examination prerequisites completed within or outside of a university shall otherwise be recognised, provided that equivalence is ascertained. [3]The doctoral candidate is responsible for submission of the documents required for this recognition. [4]Examination prerequisites shall not be recognised in the event that they were completed in the degree course or in the consecutive degree courses whose completion provided the basis for entry into the doctoral degree programme and which were necessary in order to complete said degree programme or degree programmes. [5]The university is required to provide reasoning for any decision not to recognise examination prerequisites (reversal of the burden of proof as specified in the Lisbon Convention). [6]The examination committee decides on the transfer of credits.

(5) [1]In general, the doctoral studies last for three years. [2]A longer period is possible, subject to agreement with the thesis committee. [3]The details concerning extensions or reductions may be defined in the specialist provisions of a programme.

(6) [1]Should the doctoral candidate undertake by means of deception or the use of unauthorised aids or by subsequent exertion of influence on a person involved in the examination to distort the results of an examination to his or her own benefit or to the benefit of a third party (hereafter in general: deception), the examination prerequisites in question shall be assessed as 'failed'. [2]From the consequences mentioned in line 1 it can also be recognised whether the doctoral candidate carries any prohibited aids with himself or herself. [3]The examiner or adjudicator in question can exclude any doctoral candidate that grossly violates this regulation from a continuation of the examination prerequisites; in this case, the examination prerequisites in question shall be assessed as 'failed'. [4]In the event of severe cases, the examination committee is entitled to exclude the doctoral candidate from the completion of any further examination or degree prerequisites. [5]A decision may be made to refrain from imposing sanctions in less serious cases. [6]If there is suspicion of the use of prohibited aids, the doctoral candidate is obligated to assist in the clarification and return the aids; should this be refusal, the relevant study or examination prerequisites are assessed as 'failed'. [7]Before a decision is made under sentence 4, the doctoral candidate shall be heard.

(7) [1]The doctoral studies end with

a) withdrawal or revocation of the acceptance to a doctoral programme or

b) termination of the doctoral candidate relationship.

[2]Withdrawal, revocation or termination may take place for an important reason. [3]In general, an important reason is deemed prevalent if the doctoral student

a) proves consistently unsuitable despite sufficient supervision,

b) fails repeatedly or to a significant extent in fulfilling the tasks with which he or she has been charged, in particular if he or she repeatedly and despite caution violates his or her reporting duties,

c) has breached the regulations to ensure good scientific practice,

d) his or her acceptance as doctoral candidate was acquired wrongfully by means of deception as concerns provision of the qualifications for entry,

or

e) if the relationship of trust with the doctoral student is irretrievably breached for reasons for which the doctoral student must carry responsibility,

(8) Thespecialised provisions for a programme may define other grounds for termination.

§ 7 Doctoral examination

(1) The degrees to be awarded under § 2 sections 1 and 2 are awarded on the basis of a successful doctoral examination.

(2) The doctoral examination includes a scientific treatise (dissertation) and an oral examination.

(3) The examination board shall suspend the doctoral process in the event that it becomes aware that proceedings are pending against the doctoral candidate concerning a breach of good scientific practice or that a judicial inquiry or criminal proceedings are pending in connection with the doctoral studies.

(4) [1]Should the doctoral candidate undertake to influence the results of the examination by means of deceit, in particular through the use of unauthorised aids in producing the dissertation or by retroactive exertion of influence on a person involved in the examination, the examination components in question shall be assessed as 'failed'. [2]Should the doctoral candidate grossly violate the regulations, the examination board may decide on termination of the oral examination; in this case the oral examination shall be assessed as 'failed'. [3]The examination committee is entitled in serious cases to exclude the doctoral candidate from the completion of any further examination components; any breach of § 8 section 1 sentence 1 letter b) in particular shall be deemed a serious breach. [4]A decision may be made to refrain from imposing sanctions in less serious cases. [5]Before a decision under sentence 3, the doctoral candidate should be heard.

III. Examination prerequisites, requirements and procedure

§ 8 Prerequisites for admission to sit the doctoral examination

(1) [1]Admission to the doctoral examination must be refused in the event the doctoral candidate

a) has concurrently applied to sit said examination with a different faculty or university or has made an application for admission in this respect;

b) has not prepared parts of the dissertation by himself or herself, but has sought the help of a third person in a manner violating examination regulations and scientific honesty, which includes strict compliance with the quotation requirement, so that inclusion of external ideas in the dissertation is clearly marked;

c) uses the services of a paid agent for the purpose of obtaining information on doctoral opportunities;

d) pays fees or delivers services against a fee or uses services free-of-charge that contradict the sense and purpose of an examination procedure; in these cases any renewed application for admission to the doctoral examination is excluded; or

e) the doctoral student is unworthy that an academic title be awarded.

[2]Admission to the doctoral examination can at any time be withdrawn or revoked in the event of cases covered under sentence 1 letters a) and c) to e).

(2) Admission to the doctoral examination has the minimum prerequisites that the doctoral candidate

a) is enrolled as doctoral student at Georg-August-Universität in accordance with the specifications defined in the statutory provisions,

b) has properly fulfilled the required education programme in accordance with the specialist, subject-related provisions of the programme and

c) has independently completed a written, scientific treatise (dissertation) and ensures in writing in accordance with appendix 1 that

ca) he or she has completed the dissertation independently and without unauthorised aids and

cb) no equivalent doctoral studies have been applied for elsewhere and that therein the dissertation entered or any part thereof has not been submitted.

(3) The specialist provisions of a programme may define other preconditions for admission to the doctoral examination.

§ 9 Application for admission to the doctoral examination

(1) Upon completion of the dissertation, a written application must be filed with the responsible examination committee for admission to the doctoral examination.

(2) The following should be enclosed with the application:

a) at least two copes of the scientific treatise (dissertation) in a written form, one copy in a digital form in the format of a word processing programme generally deemed standard or as a PDF document and any published manuscripts by the applicant connected to the dissertation; the doctoral candidate must bindingly confirm that the contents of the digital version are identical with the written scientific treatise;

b) specification of the academic title to be awarded in accordance with § 2;

c) a resumé, which is written in German or English and also furnishes information on the scientific progress of the doctoral candidate;

d) the completed and signed check list for doctoral candidates, including the proof of examination prerequisites detailed therein in accordance with the requirements defined for the corresponding programme,

e) designation of the referee proposed by the doctoral candidate and the other members of the examination board as defined in the provisions of § 11 sections 1 to 3 and a proposed

date for the oral examination as discussed with said persons; the examination committee shall decide in the event that this proposal of a date is not possible;

f) the proof of proper enrolment.

(3) [1]After submission of the application and review of the formal prerequisites, the examination committee decides on the permission to take the doctoral examination. [2]Once all prerequisites have been satisfied, it shall thereupon open the examination process and shall appoint the examination board and its chairperson. [3]In the admission to the doctoral examination, the doctoral candidate acquires the rightful claim to a review of his or her dissertation.

(4) The applicant receives a written notice regarding the admission, and in the case of rejection also information on rights of legal recourse.

(5) [1]Withdrawal of a doctoral application is permitted for as long as the doctoral process has not been terminated by notice of rejection on the dissertation or the oral examination has commenced. [2]An attempt to take the doctoral examination does not count as 'taken' in case of a legal withdrawal.

§ 10 Dissertation

(1) [1]The main focus of the dissertation must be completed in a field of mathematics or natural sciences or in an area of computer sciences. [2]It must satisfy strict scientific standards, represent progress in science and must be an independent achievement on the part of the doctoral candidate. [3]It must be a scientifically noteworthy, written work and must demonstrate that the doctoral student is equipped to solve scientific questions in an independent and methodically faultless manner and can present the results thereof in the form deemed standard within the subject. [4]Any results that the doctoral student has already published may be included in the dissertation. [5] Sources must be stated in the standard academic form.

(2) The dissertation may not have been or be used for any other doctoral or comparable process at a university in Germany or abroad, unless otherwise specified in these regulations (§§ 26 ff.).

(3) [1]The dissertation may be drafted in German or English. [2]A flyleaf according to the template provided in appendix 2 and a brief curriculum vitae detailing the scientific education must be included.

(4) [1]A dissertation should be completed mainly in connection with a scientific institution associated with the responsible programme. [2]Any exceptions to this require prior consent from the responsible examination committee.

(5) [1]In place of a dissertation, a collection of at least two scientific publications may be accepted in which the doctoral candidate is the author and which have been accepted in an academic journal with a peer-review system, provided that one of the supervisors confirms that these publications

shall account for the substantial part of the scientific work (cumulative dissertation); other provisions than this may be defined in the specialist provisions of a programme. [2]For cumulative dissertations, a summarised presentation of the topics dealt with, combined with an extensive discussion section and a presentation of the doctoral candidate's own contributions to the publication , must also be submitted. [3]A cumulative dissertation requires the approval of the responsible examination committee; application for this must be applied for no later than three months before submission of the dissertation.

(6) The specialist provisions relating to the specific subject can contain more detailed regulations.

§ 11 Examination board

(1) [1]The responsible examination committee shall appoint an examination board of at least six persons for each doctoral examination, including the members of the thesis committee who are authorised examiners and the referees, who must also be authorised examiners, and also the chairperson. [2]The referee and at least one co-referee for the dissertation shall be the referees. [3]At least one of the referees must belong to the thesis committee; at least one of the referees must be a member of the professoral group at Georg-August-Universität Göttingen.

(2) [1]The examination board must be comprised in such a way that the referee and at least one other member are authorised examiners in the programme in which the doctoral studies are completed. [2]The other members of the examination board must at least be authorised examiners in another programme in the graduate school; individual authorisation to examine as specified under § 12 section 4 shall in this respect also be considered an authorisation to examine.

(3) Upon convening the examination board, it must be ensured that the research areas dealt with in the dissertation are represented.

(4) Members of the Dean's Office at which the doctoral candidate is enrolled may be advisory members of the examination board and may also be chairpersons or coordinators thereof without holding any rights as authorised examiners.

(5) [1]Retired professors may not act as a referee or examiner in the doctoral process for a period exceeding three years after the end of the tenure. [2]The faculty council at the faculty in which the doctoral candidate is enrolled shall rule on exceptions in this respect, decided by simple majority of the members. [3]In the event of an institution as defined under § 3 section 2 sentence 3, the examination committee responsible in each case shall decide by majority vote of its members that hold a doctorate.

(6) In the event that additional referees are appointed over the course of the examination process, they shall also be appointed members of the examination board as specified under the provisions of this regulation.

(7) Abstentions are not permitted in rulings by the examination board.

§ 12 Authorisation to take the examination

(1) All scientists holding a doctorate may be appointed authorised examiners of a programme within the doctoral studies school, provided they

1. are involved in duties relating to research or research and teaching at a university or a non-university research institution;
2. either hold the right to a doctor title in a mathematics and natural sciences research area or have in another way proven their suitability as authorised examiners; in particular, this proof shall require that the following has been completed in a field of mathematics and natural sciences
   a) a habilitation or appointments procedure for professorship was successfully completed,
   b) a procedure equivalent to a habilitation or appointments procedure for professorship was completed or
   c) at least three finished doctoral studies have been supervised independently and third-party funding has been acquired;

and

3. proven scientific relevance to the main focus of the programme.

(2) The responsibility for appointments as authorised examiners in accordance with section 1 is within the remit of

a) the faculty council in the faculty responsible for the basic programme,

b) the Management Board of the doctoral studies as proposed by the party responsible for the programme for all other programmes.

(3) Sections 1 and 2 shall apply accordingly to the subject of computer sciences as concerns the computer sciences programme belonging to the doctoral studies.

(4) [1]Unlike in sections 1 and 2, examination authorisation restricted to a certain doctoral process (individual examination authorisation) can be granted to a person authorised to conduct said examinations, provided their participation in the doctoral examination is necessary or advantageous. [2]The Management Board of doctoral studies shall be responsible in this respect.

§ 13 Assessment and acceptance or rejection of the dissertation

(1) Each referee shall produce an assessment of the dissertation within four weeks after filing the dissertation and propose:

a) To accept the dissertation,

b) To reject the dissertation or

c) To return the dissertation for revision, if he or she would recommend a rejection otherwise.

(2) [1]For revision, an appropriate deadline (final deadline) is to be set by the examination board. [2]If a dissertation returned for revision is not submitted once more within this deadline, it is regarded as rejected. [3]Provided that the dissertation is submitted within the specified period, the procedure thereafter shall be determined on the basis of the sections hereafter.

(3) The university is entitled to use suitable software, in particular plagiarism detection software, to determine whether the dissertation submitted was completed independently and without unauthorised assistance and in particular to determine whether any text passages or other sources were incorporated without annotation.

(4) If acceptance of the dissertation is recommended, this shall equally be one of the ratings.

a) summa cum laude (excellent)

b) magna cum laude (very good)

c) cum laude (good)

d) rite (satisfactory)

(5) [1]An additional co-referee must be appointed if

a) the proposals submitted by the referees as concerns acceptance or rejection of the dissertation differ,

b) the examination board considers an objection as specified under section 7 to be justified, or

c) the examination board considers this necessary in the event of deviations in the grades proposed by the referees.

[2]The examination board is entitled to propose suitable persons to the examination committee. [3]A co-referee in accordance with sentence 1 letters a) and b) shall not be appointed as member of the examination board or a co-referee in accordance with sentence 1 letter c) until after the decision on accepting the dissertation.

(6) [1]The precondition for awarding the distinction 'summa cum laude' is the submission of three reviews on the dissertation proposing said award, among them at least one review by an external scientist (external review). [2]An external review must be obtained if until said point only two referees had been appointed or if until said point no external review had been obtained and only if the referees unanimously propose the distinction 'summa cum laude'. [3]If proposed by the thesis committee, the review defined under sentence 2 can be obtained at the same time as the reviews by the referees if it appears possible that the distinction 'summa cum laude' may be awarded. [4]The external scientist must hold qualifications as specified under § 12 section 1 and must have gained distinction through his or own research output in the research area in which the dissertation is produced; in the event that he or she should be an authorised examiner, it is not necessary that he or she be appointed member of the examination board. [5]The examination committee is responsible

for obtaining the additional review; the examination board cam propose suitable persons to the examination committee.

(7) [1]Members of the doctoral programme holding rights as authorised examiners will be given the right to inspect the dissertation over the course of at least a one-week period, most commonly during the review period. [2]They are entitled to lodge an appeal with the examination board against the dissertation, which must be reasoned in writing.

(8) [1]The dissertation shall be deemed accepted once all referees have recommended acceptance of the dissertation and there are no objections pending as specified under section 7. [2]The dissertation shall be deemed rejected and the doctoral examination failed in the event that all referees recommend rejection of the dissertation.

(9) [1]This notwithstanding, the examination board shall make its decision on accepting or rejecting the dissertation and hence the failure in the doctoral examination on the basis of all reviews received and in the presence of the examination committee coordinator. [2]The decision must be made within three months.

(10) [1]In the case of rejection of dissertation, reapplication for permission to take the doctoral examination is possible only once and not before the end of a year. [2]In this case, a new or considerably improved dissertation should be submitted. [3]In doing this, the unsuccessful attempt should be notified. [4]If this dissertation is also rejected, then the doctoral examination is definitively failed.

(11) [1]Notification is issued in writing by the coordinator of the examination committee. [2]Acceptance of the dissertation shall also be considered equivalent with admission to the oral defense. [3]In the event that the dissertation should be rejected on the first occasion, reference is made to the regulations concerning repetitions contained in section 10; notification shall be provided with instructions on the rights of legal recourse in the event of a final rejection.

(12) The specialist provisions relating to the specific subject may contain more detailed regulations.

§ 14 Reference copy

At least one copy of the dissertation submitted shall remain in the files with all reviews within the examination management system for the corresponding programme.

§ 15 Date of the oral examination

[1]The coordinator of the responsible examination committee shall set the date for the oral examination following the final decision on acceptance of the dissertation; this shall most commonly consider the proposal in accordance with § 9 section 2 letter e); the candidate shall be

informed thereof with at least one week's notice. [2]The oral examination should be conducted in standard procedure no later than 6 weeks after admission to the doctoral examination.

§ 16 Oral examination

(1) [1]The oral exam takes place as a colloquium (oral defense) in German or in English. [2]It is held by the chairperson of the examination board. [3]At least two-thirds of the members of the examination board must be present, including at least two referees.

(2) The candidate and the members of the examination board are invited in writing to the oral defense by the coordinator of the responsible examination board, including specification of the date and place.

(3) [1]The oral defense is generally open to the university public. [2]Invitations are issued by notice and also electronically, for example by Internet. [3]Unlike as specified under sentences 1 and 2, the candidate may, in the event of an important reason, apply for a ruling that the university public be entirely or partially excluded. [4]Ruling thereon is passed by the examinations board.

(4) The oral defense is intended that the candidate may prove that he or she is familiar with the state of current research in the research area of the dissertation and that the candidate has fundamental specialised knowledge even beyond the specific research area contained in the dissertation and that the candidate is equipped to independently consider scientific problems and to present and defend them in argument.

(5) [1]During the oral defense, the candidate should by means of a presentation lasting no more than 30 minutes explain the objectives and results of his or her dissertation as a demonstration of the broader scientific context and subsequently answer relevant questions at the end of the presentation. [2]Initially, only members of the examination board shall be entitled to pose questions. [3]The chairperson of the examination board shall ensure that afterwards, the remaining members of the audience have sufficient and appropriate opportunity to pose questions. [4]The candidate should furthermore face questions that refer to matters related to the scientific field in which the dissertation is produced and also a scope of themes and methodical questions referring to the research area as a whole and adjacent research areas in general.

(6) The oral defense shall last at least 60 and no more than 90 minutes.

(7) The specialist provisions relating to the specific subject may contain more detailed regulations.

IV. Assessment

§ 17 Grades and distinction

(1) [1]The examination board shall decide by a majority of three-quarters of members present whether the oral defense has been passed; this decision shall be made immediately after the oral

examination and shall be made in secret. [2]If the oral defense is passed, the examination board shall, under consideration of the reviews of the dissertation received and the performance in the oral defense, specify an overall grade for the doctoral examination. [3]In this, only such grades as are specified in § 13 section 4 may be awarded; contrary to this, the examination board shall rule on the award of the grade 'summa cum laude' as specified under section 2. [4]If provided for in the specialist provisions of a programme, individual grades may be awarded for the dissertation and the oral defense.

(2) [1]The overall grade 'summa cum laude' may only be issued if all reviews on the dissertation agree with the proposal 'summa cum laude' and the other members of the examination board in attendance unanimously consider the oral defense worthy of this distinction. [2]In this, at least three reviews on the dissertation must have been received, including the external review in accordance with § 13 section 6.

(3) [1]An overall grade shall only be mentioned in the doctoral certificate if it is 'summa cum laude'. [2]In addition, an examination certificate as specified in the template in appendix 4 shall be submitted in addition and on application by the doctoral candidate and in all cases for doctoral degree programmes; this shall contain the overall grade and, if provided for in the specialist provisions of a programme, also individual grades in accordance with sections 1 and 2.

(4) [1]One member of the examination board must keep minutes on the course of the oral examination; this must be signed by the other members of the examination board. [2]The minutes must detail the grades as specified under sections 1 and 2 and must have been submitted to the examination management by no later than one week before announcement of the doctoral results in accordance with § 20.

(5) [1]Following the oral examination, the chairperson of the examination board shall inform the candidate of the results of the doctoral examination. [2]In the event of passing, the chairperson of the examinations board shall inform the candidate immediately that the doctoral degree must not be used before completion of the doctoral studies. [3]Upon application, the doctoral candidate receives a written certificate that the examination has been passed; this must also detail that the doctoral degree may not be used before completion of the doctoral studies.

§ 18 Failure, discontinuance, retake of the oral examination

(1) [1]Should the achievement demonstrated in the oral examination be insufficient, it shall be assessed as failed. [2]If the candidate fails to attend the examination or withdraws from the examination, then the examination is considered failed, unless an important reason occurs. [3]Important reason must be notified immediately in writing to the examination board and must be made plausible. [4]In case of withdrawal or failure to attend due to illness, a medical certificate

specifying the expected duration of the disease causing the inability to take the examination should be produced immediately, unless the illness is obvious. [5]If the reasons are accepted, a new examination date is scheduled.

(2) [1]A failed oral examination can be repeated within a year upon application of the doctoral candidate; however, this shall be no earlier than after three months. [2]Any further repetition shall not be permitted; failed examinations in a comparable doctoral study programme at other universities shall be added. [3]If the oral examination has been irrevocably failed, the doctoral examination shall also be deemed irrevocably unsuccessful.

(3) [1]An attempt at repetition should be completed before the same examination board. [2]If necessary, the responsible examination committee shall appoint new examiners.

§ 19 Decision, objection

(1) [1]Rejections and other negative acts of administration that are ruled according to these regulations or other programme regulations must be reasoned in writing and provided with information on legal remedies and communicated to the doctoral candidate. [2]These decisions can be objected within a month after publication of the notice, as far as this notice concerns the review of an examination result.

(2) The objection must be lodged in writing or in transcript.

(3) The responsible examination committee decides on the appeal in consideration of the procedure under section 4, unless the appeal is sustained.

(4) [1]Insofar as the appeal refers to a specific examination assessment by a certain examiner, the responsible examination board forwards the appeal to this person for review. [2]If the examiner changes the assessment according to the appeal, the examination board sustains the appeal. [3]Otherwise, it reviews the decision based on the statement by the examiner, especially based on whether

a) The examination procedure has been properly carried out,

b) The generally valid assessment principles have been followed,

c) the examiner has not been influenced by irrelevant considerations.

[4]The same applies if the appeal is against the assessment by several examiners. [5]In the event that there should be a violation in accordance with sentence 3, a further review on the dissertation shall be obtained accordingly or the oral examination will be repeated with an examiner as yet uninvolved in the procedure. [6]Reassessment must not lead to deterioration in the examination assessment.

(5) [1]If the objection is not sustained, a notice of rejection is issued. [2]This shall be issued by the coordinator of the examination committee. [3]The notice of rejection should be reasoned, issued with instructions on rights of legal remedy and delivered.

V. Following successful completion of the doctoral degree examination

§ 20 Announcement of the doctoral studies result

[1]On two occasions in each semester, the dean of the mathematics natural and science faculties shall announce on a date jointly decided for the doctoral study programmes in the mathematics and natural science faculties the names of the doctoral candidates that have since passed the doctoral examination and shall, in the framework of a celebratory event, announce the results of their doctoral process. [2]Reference must be made therein to the obligation to publish the dissertation and also to the regulations as concerns award of the doctorate.

§ 21 Publication of the dissertation

(1) Doctoral candidates must publish their dissertations.

(2) [1]Conditions imposed by the referees must be considered in the publication. [2]Ruling thereon is passed by the examinations board in the event of differences. [3]Following satisfaction of the conditions, the referee must without delay approve the final version for publication by signing the revision certificate (annex 3). [4]In the event that the referee did not supervise the work, the examination committee shall be entitled to commission a different person with issuing the revision certificate.

(3) In addition to printing in the form of an independent copy, a copy in the DIN A5 format or publication on the document server of SUB Göttingen is also sufficient to satisfy publication.

(4) The faculty council in the faculty in which enrolment took place may authorise additional forms of publication.

(5) 1The doctoral candidate must submit a definite number of printed copies of his or her dissertation (obligatory copies) for the respective form of publication free of charge to the examination management of the programme as follows:.

a) one copy of the fully approved version in the event that substantial sections of the dissertation were published in academic journals; at least 10 off-prints or printed copies; each of these must be submitted as proof of publication; only 10 off-prints must be submitted if the work is published in full;

or

b) three copies of the retail edition if a commercial publishing house manages distribution to booksellers and a minimum edition of 100 copies is proven; one copy of the complete approved version must also be submitted;

or

c) exclusively one copy of the complete approved version, together with proof of publication on the SUB Göttingen document server.

(6) [1]The compulsory copies must be submitted within one year following successful completion of the oral examination. [2]In the event that the doctoral candidate fails to meet this deadline, all rights acquired through the examination become void. [3]The responsible examination committee can extend the deadline for submission, but by no more than a further year. [4]This shall require a reasoned application filed by the doctoral candidate before expiry of the annual deadline.

(7) [1]The compulsory copies should be provided with a title page, whose front and rear side should be designed according to the template in appendix 2. [2]At the end of the dissertation, a short curriculum vitae that represents the scientific education of the doctoral candidate career must be printed. [3]This regulation may not apply to the copies of the work published for sale by booksellers.

(8) [1]Publication in the form of single contributions in publications with external review procedures is also considered a publication, insofar the publications represent the contents of the dissertation as a whole. [2]This is confirmed in the revision slip (section 2). [3]The provision of the section 7 applies correspondingly. [4]If the dissertation is published in parts in accordance with sentence 1, but without reflecting the contents as a whole, the provisions of the sections 2 to 7 apply accordingly to the as yet unpublished parts.

(9) [1]Should there be an important reason and upon joint application of the doctoral student and his or her referee or the person responsible as specified under section 2, publication may be managed initially in the manner that only an abstract is published for a certain period and not the complete dissertation manuscript. [2]An important reason is present especially when

a) parts of the dissertation were accepted for publication in a journal or a publishing house and prior publication of these parts is inadmissible according to the underlying contract,

b) this is required for the protection of intellectual property.

[3]The period under line 1 ends six months after the day of the passed oral examination; once the application is accepted, the period can be extended once by additional six months. [4]Ruling thereon is passed by the examinations board. [5]The application should be placed before the oral examination scheduled. [6]At the latest with the expiry of the time period under lines 1 and 3, the obligatory copies under section 5 line 1 must be submitted.

(10) Referees that have rejected a dissertation shall not be, on their request, mentioned by name in the dissertation.

§ 22 Award of the doctorate

(1) [1]Once the doctoral candidate has fulfilled the obligations as specified in this regulation and in particular has submitted the compulsory copies, the examination management shall complete the doctorate by awarding the doctoral certificate according to the templates contained in appendix 5. [2]An 'official translation' shall also be issued if the certificate is in German. If applicable, an examination certificate will also be issued in accordance with § 17 section 3 sentence 2 using the template contained in appendix 4. [3]The day of the passed oral examination is considered the date of doctoral graduation.

(2) Contrary to section 1 line 1, the doctorate can be awarded before the mandatory copies under § 21 section 5 p. 1 are submitted, if

a) instead of the mandatory copies, a publishing house contract with an accredited scientific publishing house is submitted and moreover declares in writing that the printing and submission of the obligatory copies are guaranteed within a maximum period of a year following the oral examination, and

b) publication takes place in accordance with § 21 section 9.

[2]The doctorate is awarded in this case under reservation of the fulfilment of obligations according to§ 21 section 5. [3]If this obligation is violated, all rights acquired through the examination, especially the right to carry the doctoral degree, become void. [4]The doctoral certificate shall be returned immediately in this case.

(3) Before handing over the PhD certificate, the doctorate degree may not be carried.

(4) Doctoral studies are complete upon award of the doctoral certificate.

§ 23 Inspection of the Examination Records

In the period between conclusion of the oral examination and awarding the doctorate or within four weeks after return or rejection of the dissertation or after failure of the oral examination, the doctoral candidate shall be entitled to inspect the written reviews and the minutes of the examination.

§ 24 Invalidity of the doctoral degree examination; withdrawal of the doctorate

(1) The doctoral examination can be declared void and the doctorate can be withdrawn,

a) if it is subsequently ascertained that the doctorate was acquired through fraudulence, or if essential prerequisites for the admission to the doctoral examination were wrongly presumed to be fulfilled,

b) if it is subsequently ascertained that the holder of the doctorate is unworthy of an academic degree,

c) if the holder of the doctorate has proved himself or herself unworthy of holding academic degree due to his or her subsequent behaviour or conduct.

(2) In the event that there is a lawful conviction for a criminal offence in connection with the doctoral studies, the doctoral examination shall be declared void and the doctorate shall be withdrawn.

(3) [1]The faculty council of the faculty in which enrolment took place shall rule on decisions as specified under sections 1 and 2 by majority votes of its members holding a doctorate. [2]Notification is issued by the dean. [3]The notice must be sent to the recipient in question.

VI. Honorary doctorate and double doctoral studies

§ 25 Awarding the honorary doctorate

(1) [1]The title of honorary doctor of natural science may be awarded as a rare distinction in recognition of outstanding academic services. [2]This shall require a resolution passed by the faculty council responsible for the subject in question by means of a majority of three quarters of the members eligible to vote and three quarters of the members holding a doctorate and eligible to vote in the other faculty councils within the mathematics and natural science faculties.

(2) [1]The honorary doctorate is awarded by dean in the form of a degree certificate. [2]This degree certificate shall list the scientific merits that led to the award of the honorary doctorate.

§ 26 Prerequisites for a joint supervision procedure

(1) A doctoral process carried out jointly with a foreign university or faculty sets the prerequisites that

1. an agreement on the cross-border supervision of this doctoral studies has been made with the foreign university or faculty or an individual cooperation contract for completion of a double doctoral degree has been concluded with the foreign university or faculty;
2. admission to the doctoral degree has been granted to the doctoral candidate at both the University of Göttingen and the foreign university or faculty.

(2) [1]The dissertation can be submitted at the University of Göttingen or the foreign university or faculty according to more detailed regulation in the agreement under section 1 no. 1. [2]A dissertation that has been submitted at the foreign university or faculty before conclusion of the agreement in accordance with section 1 no. 1 and has been accepted or rejected there cannot be resubmitted at the University of Göttingen. [3]The agreement under section 1 no. 1 must ensure that a dissertation submitted at the University of Göttingen and accepted or rejected there before conclusion of the agreement under section 1 no. 1 cannot be resubmitted at the foreign university or faculty.

(3) [1]During the execution of the doctoral process, the thesis supervision is provided by at least one authorised examined at the University of Göttingen or one professor at the foreign university or faculty. [2]The execution of supervision is specified in the agreement under section no. 1

(4) [1]If the dissertation is submitted at the University of Göttingen, then § 27 should be applied. [2]If the dissertation is submitted at the foreign university or faculty, then § 28 should be applied.

§ 27 Submission at the University of Göttingen

(1) [1]Unlike in § 11 (regulation concerning the composition of the examination board), the Dean's Office at the faculty in the University of Göttingen at which the doctoral candidate is enrolled (faculty leading the doctorate), shall agree with the foreign university or faculty in appointing an examination board which shall comprise scientists from both universities; the details of this composition are provided for in the agreement as specified under § 26 section 1 no. 1. [2]Both academic advisers to the dissertation should be appointed as reviewers.

(2) [1]If the dissertation was accepted at the University of Göttingen, then it is transferred to the foreign university or faculty for approval on the continuation of the process. [2]If the foreign university or faculty issues the approval on continuation of the process, then an oral examination takes place at the faculty of the University of Göttingen executing the doctoral degree according to the provisions of §§ 15 to 18; this may differ from the provisions of §§ 15 to 17 in established exceptional cases in accordance with the agreement under § 26 section 1 no. 1.

(3) [1]If the dissertation is accepted by the University of Göttingen, but the approval for continuing the process is rejected by the foreign university or faculty, the joint procedure is terminated. [2]The doctoral process shall be continued in accordance with the general provisions of this regulation and on the basis of the specialised provisions of the subject programme when applicable. [3]A new examination board is to be appointed for the examination according to § 11 (provisions for appointing the examination board).

§ 28 Submission at the foreign university or faculty

(1) [1]If the dissertation is submitted at the foreign university or faculty, then the foreign university or faculty decides on its acceptance and/or continuation of the process after reviewing the dissertation. [2]If a positive ruling is issued, the faculty leading the doctoral process at the University of shall decide in accordance with § 13 and after submission of all required reviews. [3]The dean announces the result to the foreign university or faculty. [4]Further, the dean shall provide notice of the names of all reviewers to be appointed to the examination board; this board shall be staffed by scientists from both universities. [5]The oral examination takes place at the foreign university or faculty.

(2) [1]If the dissertation is rejected at the University of Göttingen, then the joint procedure is concluded. [2]The rejected dissertation may not be resubmitted at the University of Göttingen. [3]The decisions on the reassessment of the doctoral degree remain unaffected.
(3) [1]If the dissertation is rejected at the foreign university or faculty, then the joint procedure is concluded. [2]The dissertation can be submitted at the University of Universität Göttingen. [3]The doctoral process shall be continued in accordance with the general provisions of this regulation and on the basis of the specialised provisions of the subject programme when applicable. [4]A new examination board is to be appointed for the examination according to § 11 (provisions for appointing the examination board).

§ 29 Joint PhD certificate

Successful completion of the doctoral process in co-supervision with a foreign university or faculty is followed by the award of a joint PhD certificate, which is signed by both universities and from which it is clear that it is a doctoral degree for scientific achievement awarded jointly by the concerned universities.

VII. Final provisions

§30 Entry into force; interim regulations

(1) This regulation enters into force on the day following its announcement in the official announcements I of Georg-August-Universität Göttingen.
(2) At the same time, the general doctoral degree regulations of the mathematics and natural science graduate school at the University of Göttingen – Georg-August University School of Science (GAUSS) – in the version contained in the announcement dated 18.10.2005 (official announcements 13/2005 p. 937), last amended on 30.06.2009 (official announcements 16/2009 p. 1618), shall be abrogated.
(3) At the same time, the general doctoral degree regulations of the mathematics and natural science faculties at the University of Göttingen in the version contained in the announcement dated 13.09.2006 (official announcements 17/2006 p. 1466), last amended on 30.06.2009 (official announcements 16/2009 p. 1639), shall be abrogated.
(4) At the same time, the doctoral degree regulations of the doctoral programmes at the Göttingen graduate school for neurosciences and biosciences (GGNB) in the version contained in the announcement dated 22.09.2008 (official announcements 31/2008 p. 2990), last amended by resolution of the presidential board on 08.09.2010 (official announcements 21/2010 p. 1686), shall be abrogated.

(5) If necessary, the doctoral degree, entry or examination regulations for the programmes included in the graduate school must be amended within the period of one year so as to ensure that said regulations specifically cater to these programmes and represent specific versions applicable to the programme in question.

(6) [1]Doctoral students that commenced their doctoral studies before this regulation came into force will be examined on the basis of this regulation. [2]Sentence 1 notwithstanding, they shall be, upon application filed within no more than six months following introduction of this regulation, examined on the basis of the regulatory provisions as specified in sections 2 to 4. [3]Doctoral examinations on the basis of the regulation as specified in sections 2 to 4 shall be held for the last time at the end of the winter semester 2014/15.

Appendix 1 (re. § 4 section 7)

Declaration by the doctoral candidate
at the Georg-August-Universität Göttingen

Name .....
(Surname, First Name)
Address .....
(Country / Postcode / Place)

I intend to produce a dissertation on the topic of .....
at Georg-August-Universität Göttingen. In this, I shall be supervised by Prof. .....

Is submit the following declaration:

1. The opportunity for the existing doctoral project was not made commercially available to me. Especially, I have not engaged any organisation that seeks thesis advisers against a fee for the preparation of dissertations or performs my obligations with respect to examination components entirely or partly.

2. I have until now and shall in future accept the assistance of third parties only in a scope that is scientifically justifiable and compliant with the legal statutes of the examinations. I shall specifically complete all parts of the dissertation myself; I have neither, nor will I, accept unauthorised outside assistance either free of charge or subject to a fee.

3. I will adhere to the regulations to ensure good scientific practice at the University of Göttingen.

4. No equivalent doctoral studies have been applied for at a different university in Germany or abroad; the dissertation submitted or parts thereof have not been used in any other doctoral project.

I am aware of the fact that inaccurate information repeals the admission to complete the doctoral studies or will thereafter represent grounds for termination of the doctoral process or withdrawal of the title awarded.

....., the
(Place).....

(Signature)

Appendix 2 Dissertation flyleaf

Front page

.....

……..

……

……

……

……

(Dissertation title)

Dissertation

- to acquire the doctoral degree in mathematics and natural science
- 'Doctor rerum naturalium'
- at the Georg-August-Universität Göttingen
-
- in the doctoral degree programme .....
- at the Georg-August University School of Science (GAUSS)
-
-

Submitted by

.....

(Name)

- from …….. (Place of birth)
- Göttingen, ... (Year)

Back page

Thesis Committee

.....
(Name, department/work group, institution)

.....
(Name, department/work group, institution)

.....
(Name, department/work group, institution)

Members of the examination board:

Referee: .....
(Names, department/work group, institution)

Co-referee: .....
(Name, department/work group, institution)

if applicable 2nd Co-referee: .....
(Name, department/work group, institution)

Other members of the Examination Board:

.....
(Name, department/work group, institution)

.....
(Name, department/work group, institution)

.....
(Name, department/work group, institution)

.....
(Name, department/work group, institution)

Date of the oral examination: .....

Appendix 3

Revision certificate

Name of the referee / of the responsible party in accordance with § 21 II 4 RerNat-O:
.....
Department/work group, institution .....

The printed copy of the dissertation by Mr./Ms
.....
from.....
entitled: .....

has been submitted to me. I have no objections to the printing of this dissertation and confirm this in accordance with § 21 II, VIII RerNat-O by my signature.

Göttingen, the

_____

Published in the Official Bulletin I no. 21 dated 04.07.2012, p. 1126, last amended by Official Bulletin I no. 56 dated 28.10.2016, p. 1543

Appendix 4 Examination transcript

Georg-August-Universität Göttingen

Mathematisch-naturwissenschaftliche Promotionsschule

– Georg-August University School of Science (GAUSS) –

Transcript of records

on the doctoral examination in mathematics and natural sciences

at the faculty.....

Mr / Ms ..... born on ..... in .....

has passed the doctoral examination in the doctoral degree programme

.....

in accordance with the examination regulations dated .....

with an overall grade of ..... on ……

Course achievements in the doctoral studies:

	Credits
1. ……..	……
2. ……..	……
3. ……..	……
4. ……..	……
5. ……..	……
6. ……..	……
7. ……..	……

Topic of the dissertation:

.....

…….

As specified in the programme:

Grade of the dissertation: .....

Grade of the oral defense: .....

Göttingen, [date] ....

Chairperson of the Examination Committee /The Dean

Appendix 5 Doctoral certificate

The doctoral candidate enrolled in a GAUSS programme receives precisely one certificate as specified according to the following template, irrespective of whether the title of a 'Dr. rer. nat.' or a 'Ph.D.' with the suffix 'Division of Mathematics and Natural Sciences' was acquired, whether the distinction 'summa cum laude' was awarded and whether the doctoral studies were completed in a basic programme, a computer sciences programme (appendixes 5a-5d) or in other programmes (appendixes 5e-5h) or additionally within the framework of the International Max Planck Research School (IMPRS) (appendixes 5i-5l).

If the title of 'Dr. rer. nat.' is awarded, the certificate shall be in German; the certificate shall be in English if the title of 'Ph.D.' is awarded.

In the event that a German-language certificate is issued, the doctoral candidate shall furthermore receive an English translation of the certificate ('official translation').

Appendix 5a: Certificate template, German (Dr. rer. nat. for the programmes specified)

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftlichen Fakultäten
unter der Dekanin/dem Dekan der Fakultät für
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr.rer.nat.),

nachdem sie/er in ordnungsgemäßem Verfahren im Promotionsprogramm
„Mathematik/Physik/Chemie/Geowissenschaften/Geographie/Biologie/Psychologie/
Informatik/Umweltinformatik“

durch die Dissertation

(„Thema“)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Göttingen, den

(Siegel der Universität)

Die Dekanin/Der Dekan der Fakultät

Appendix 5b: Certificate template, German (Dr. rer. nat.; distinction 'summa cum laude' for the programmes specified)

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftlichen Fakultäten
unter der Dekanin/dem Dekan der Fakultät für
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr.rer.nat.),

nachdem sie/er in ordnungsgemäßem Verfahren im Promotionsprogramm
„Mathematik/Physik/Chemie/Geowissenschaften/Geographie/Biologie/Psychologie/
Informatik/Umweltinformatik“

durch die Dissertation

(„Thema “)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Als Auszeichnung für hervorragende Leistungen wird das Gesamtprädikat
„summa cum laude“ vergeben.

Göttingen, den *(Datum der Ausstellung der Urkunde)*

(Siegel der Universität)

Die Dekanin/Der Dekan der Fakultät

Appendix 5c:
Certificate template (Ph.D.; English-language for the programmes specified)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Faculties of Mathematics and Natural Sciences
under the Dean of the Faculty of
Professor

She/He proved her/his scientific qualifications
according to the regulations of the doctoral programme

'Mathematics/Physics/Chemistry/Geoscience/Geography/Biology/Psychology/
Computer Science/Environmental Informatics'

by completing her/his doctoral thesis (Dissertation)

" "

and thesis defence (Disputation), dated

Göttingen,

(Seal of the University)

Dean of the Faculty

Appendix 5d:

Certificate template (Ph.D; distinction 'summa cum laude'; English-language for the programmes specified)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Faculties of Mathematics and Natural Sciences
under the Dean of the Faculty of
Professor

She/He proved her/his scientific qualifications
according to the regulations of the doctoral programme

'Mathematics/Physics/Chemistry/Geosciences/Geography/Biology/Psychology/
Computer Science/Environmental Informatics'

by completing her/his doctoral thesis (Dissertation)

" "

and thesis defence (Disputation), dated

In recognition of the excellent achievements of
her/his doctoral studies she/he is awarded the overall grade
'summa cum laude'.

Göttingen,

(Seal of the University)

Dean of the Faculty

Appendix 5e: Certificate template, German (Dr. rer. nat.; not the basic programme or computer sciences programme)

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftliche Promotionsschule
Georg-August University School of Science (GAUSS)
unter der Sprecherin/dem Sprecher
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr. rer. nat.),

nachdem sie/er in ordnungsgemäßem Verfahren
im GAUSS-Promotionsprogramm „ “

durch die Dissertation

(„Thema“)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Göttingen, den

(Siegel der Universität)

Die Sprecherin/Der Sprecher von GAUSS

Appendix 5f:
Certificate template, German (Dr. rer. nat.; distinction 'summa cum laude'; not the basic programme or computer sciences programme)

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftliche Promotionsschule
Georg-August University School of Science (GAUSS)
unter der Sprecherin/dem Sprecher
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr. rer. nat.),

nachdem sie/er in ordnungsgemäßem Verfahren
im GAUSS-Promotionsprogramm „ “

durch die Dissertation

(„Thema“)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Als Auszeichnung für hervorragende Leistungen wird das Gesamtprädikat
„summa cum laude“ vergeben.

Göttingen, den

(Siegel der Universität)

Die Sprecherin/Der Sprecher von GAUSS

Appendix 5g:
Certificate template (Ph.D.; English-language; not the basic programme or computer sciences programme)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Georg-August University School of Science (GAUSS)
under the Dean
Professor

She/He proved her/his scientific qualifications
according to the regulations of the
doctoral programme " "

by completing her/his doctoral thesis (Dissertation)

" "

and thesis defence (Disputation), dated

Göttingen,

(Seal of the University)

Dean of GAUSS

Appendix 5h: Certificate template (Ph.D; distinction 'summa cum laude'; English-language; not the basic programme or the computer sciences programme)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Georg-August University School of Science (GAUSS)
under the Dean
Professor

She/He proved her/his scientific qualifications
according to the regulations of the
doctoral programme " "

by completing her/his doctoral thesis (Dissertation)

" "

and thesis defence (Disputation), dated

In recognition of the excellent achievements of
her/his doctoral studies she/he is awarded the overall grade
"summa cum laude".

Göttingen,

(Seal of the University)

Dean of GAUSS

Appendix 5i:
Certificate template, German (Dr. rer. nat. within the framework of an IMPRS)

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftliche Promotionsschule
Georg-August University School of Science (GAUSS)
unter der Sprecherin/dem Sprecher
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr. rer. nat.),

nachdem sie/er in ordnungsgemäßem Verfahren
im GAUSS-Promotionsprogramm „ “

durch die Dissertation

(„Thema“)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Sie/Er hat die Promotion im Rahmen der
International Max Planck Research School
„IMPRS for “ durchgeführt.

Göttingen, den

(Siegel der Universität)

Sprecherin/Sprecher von GAUSS

(Minerva Logo)

Sprecherin/Sprecher der IMPRS

Appendix 5j: Certificate template, German (Dr. rer. nat. within the framework of an IMPRS; distinction 'summa cum laude')

Die Georg-August-Universität Göttingen
unter der Präsidentin/dem Präsidenten
Professorin/Professor Dr.

verleiht
durch die Mathematisch-Naturwissenschaftliche Promotionsschule
Georg-August University School of Science (GAUSS)
unter der Sprecherin/dem Sprecher
Professorin/Professor Dr.

Frau/Herrn

geboren am in

den Grad einer Doktorin/eines Doktors der Naturwissenschaften (Dr. rer. nat.),

nachdem sie/er in ordnungsgemäßem Verfahren
im GAUSS-Promotionsprogramm „ “

durch die Dissertation

(„Thema“)

sowie durch die Disputation vom
ihre/seine wissenschaftliche Befähigung erwiesen hat.

Als Auszeichnung für hervorragende Leistungen wird das Gesamtprädikat
„summa cum laude“ vergeben.

Sie/Er hat die Promotion im Rahmen der
International Max Planck Research School
„ IMPRS for “ durchgeführt.

Göttingen, den

(Siegel der Universität)

Sprecherin/Sprecher von GAUSS

(Minerva Logo)

Sprecherin/Sprecher der IMPRS

Appendix 5k
Certificate template (Ph.D. within the framework of an IMPRS; English-language)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Georg-August University School of Science (GAUSS)
under the Dean
Professor

She/He proved her/his scientific qualifications
according to the regulations of the
doctoral programme " "

by completing her/his doctoral thesis (Dissertation)

" "

and thesis defence (Disputation), dated

She/He graduated from the International Max Planck Research School
“IMPRS for “

Göttingen,

(Seal of the University)

The GAUSS Coordinator

(Minerva Logo)

The IMPRS Coordinator

Appendix 5l: Sample degree certificate (Ph.D. within the framework of an IMPRS; distinction 'summa cum laude'; English-language)

The Georg-August-Universität Göttingen

awards

Ms./Mrs./Mr.

born on in

the degree Doctor of Philosophy (Ph.D.)
Division of Mathematics and Natural Sciences

under the President
Professor

through the Georg-August University School of Science (GAUSS)
under the Dean
Professor

She/He proved her/his scientific qualifications
according to the regulations of the
doctoral programme " "

by completing her/his doctoral thesis (Dissertation)
entitled
" "

and thesis defence (Disputation), dated

In recognition of the excellent achievements of
her/his doctoral studies she/he is awarded the overall grade
"summa cum laude".

She/He graduated from the International Max Planck Research School
“IMPRS for “

Göttingen,

(Seal of the University)

(Minerva Logo)

Dean of GAUSS

Dean of the IMPRS

Appendix 6 Specialist regulations for the basic course in mathematics

A. Special responsibilities

Contrary to § 3 section 2 sentence 4, the dean of studies for mathematics is responsible for matters relating to the doctoral programme, provided that the dean is a member of the Institute for Computer Sciences.

B. Special regulations concerning the cumulative dissertation

Contrary to § 10 section 5, it is not mandatory that manuscripts submitted within the framework of a cumulative dissertation shall have been accepted by a peer review journal.

C. Doctoral studies

At least 21 credits (abbreviated as C) must be acquired, divided as follows:

1. Research programme

Participation in at least one advanced or research course in mathematics (3 C).

Participation in at least one conference specific to the research (e.g. Annual Conference of the German Association of Mathematicians) in the form of a lecture or a poster presentation. (3 C) *

2. Doctoral degree programme

Successful participation in at least one advanced event (e.g. intensive course) in the research area the dissertation covers. (6 C) *

Successful participation in two additional advanced events. (at least 3 C each)

3. Key qualifications

Completion of programme elements designed to acquire key competencies of completion of tutorial duties in an exercise or a course in the Faculty of Mathematics and Computer Science. (at least 3 C)

Appendix 7: Specialist regulations for the basic course in physics

A. Special responsibilities

Oral examination: Contrary to § 16 section 3, the candidate may apply for the university public to be excluded from the presentation in the event that there should be an important reason; the examination board shall rule thereon. Further, the candidate may apply for the university public to be excluded from the questions section.

B. Performance record prerequisites

Over the course of the doctoral studies, the following performance records have to be provided:

1. Research programme (6 C)

a. annual report on progress in the dissertation during the advanced course.

b. proof of at least one presentation of research results given by the doctoral candidate at a national or international conference in the form of a lecture or a poster.

c. proof of at least one publication containing substantial contributions by the candidate, submitted to an internationally peer review academic.

2. Training programme (6 C)

a. proof of participation in advanced courses on the research area the dissertation covers in a scope of at least 2 WLH (approx. 3 C). Suitable events shall be marked accordingly in the faculty's catalogue of lectures.

b. Proof of participation in advanced events in various research areas within natural sciences that are not immediately related to the research area of the dissertation, completed in a scope of at least 2 WLH each (approx. 3 C). A member of the thesis committee will decide whether a course belongs to the closer research area of the dissertation.

3. Teaching programme (at least 8 C)

Proof of participation in non-independent teaching by supervision of exercises, courses and internships for events of the Bachelor and Master degree programme in Physics with a scope of at least 8 C workload, generally during the doctoral studies, including the supervision of at least one exercise in the Bachelor or Master degree programme in “Physics”. No more than 2 C can be acquired through guiding a Bachelor, Master or Diplom (German university degree) thesis. The Faculty of Physics shall announce the number of credits to be awarded before the start of the events. Completion of said achievement must be confirmed by submission of a certificate by the responsible lecturer at the event. This shall be the thesis supervisor if supervision is provided for theses. The regulation under § 6 section 4 sentence 2 remains unaffected.

Appendix 8: Specialist regulations for the basic course in chemistry

A. Special responsibilities

Dissertation Contrary to § 10 section 5, cumulative dissertations are not permitted in the basic chemistry programme.

B. Proof of examination prerequisites

1. Progress in the doctoral project

Annual meeting with the members of the thesis committee on progress achieved as detailed in a written report (progress protocol)

2. Specialised competency: at least 15 C

Credits can be acquired by

- successful participation in special lectures and courses from the courses offered at the mathematics and natural sciences faculties (without psychology), as confirmed by the lecturer (1 C per SWH);
- successful planning and implementation of interdisciplinary experiments, measurements and calculations, etc., that exceed the scope of routine elements, lead to mutual scientific benefits and are, in their nature, equivalent with courses (up to 5 C on the basis of confirmation by the supervising lecturer);
- scientific lectures:
    - in faculty courses within the work group (1 C per two lectures),
    - in courses beyond the work group (1 C per lecture),
    - at national scientific conferences in the research field (2 C per lecture),
    - at international scientific conferences in the research field (3 C per lecture),
- portfolio on the attendance of at least specialist lectures, e.g. as part of institute colloquia.

3. Key qualifications: at least 6 C

- Up to four presentation of the candidate's own research results at specialist conferences in the research area, at doctoral candidate workshops within the doctoral study programmes or during courses offered across different work groups (1 C per presentation; no more than 4 C)
- Participation in events intended to convey key competencies (lectures on professional outlines within chemistry; foreign language courses; events on project management, applicant training, commercial relief, etc.)

4. Teaching

Appropriate participation in non-independent teaching and supervision duties in basic teaching, most commonly 2 SWH/semester.

Appendix 9: Specialist regulations for the basic programme in geosciences/geography

A. Proof of examination prerequisites

At least 20 credits (C) must be acquired within the framework of the doctoral studies as specified in the provisions of the following regulations. Participation in the various events should take place following consultation with the thesis committee.

Attendance of at least one specialist – when possible international – conference in the research area, including a lecture or poster, is mandatory.

1. Research and study programme

A total of 18 C must be acquired. The main subject and related research areas must be considered appropriately. Credits are awarded for the attendance of, that is successful participation in, the following as examples:

a.) Within the faculty / University of Göttingen

I. Master course (credits as specified in examination regulations)
II. Research course
III. Departmental course
IV. Institute colloquium
V. Special course offered by external lecturers

b.) External

VI. Workshop
VII. Summer School
VIII. Special course in the research area offered in other institutions
IX. Research course
X. Specialist conference in the research area with lecture or poster – when possible internationally (3 C)
XI. Other events may be applicable on the advice of the thesis committee.

2. Key qualifications

A total of 2 C must be acquired. Credits will be awarded for successful participation in university events (e.g. in ZESS – Central Institution for Languages and Key Competencies), faculty events and events at other institutions.

Appendix 10: Specialist regulations for the basic course in biology

Proof of examination prerequisites

During the phase of doctoral studies, proof of examination prerequisites in a scope of at least 20 C should be completed in accordance with the following provisions; One credit is equivalent with a workload of approx. 30 hours, including time for preparation and follow-up.

1. Participation in colloquia and active participation in courses (5 - 10 credits)

Doctoral candidates are expected each semester to take part in one colloquium and one course (e.g. departmental or institute course). 0.5 credits per semester are awarded for colloquia; attendance must be confirmed by submission of a proof of examination prerequisites signed by the supervisor. 2 credits per semester are awarded for participation in a course; this stipulates that a lecture be presented, which must be confirmed by the professor responsible for the course or by the first supervisor.

2. Active participation in teaching (5 - 10 credits)

Teaching duties must be discharged most commonly in the faculty. Equivalent, individual proof of completion may be provided in the event that some teaching is provided outside of the faculty. Additionally, the examination board may issue general recognition of teaching events held regularly in other faculties. 1 credit is awarded per SWH for supervising students during courses or internships; 2 credits are awarded for supervision during lab rotations with a scope of at least 6 weeks and also for the supervision of bachelor theses. Further, three credits can be awarded on one occasion for the supervision of a Diplom or a master thesis. Certification shall be issued by one of the supervisors.

3. Active participation in specialist conferences (no more than 6 credits).

3 credits will be awarded, provided there is active participation (this means poster presentation or lecture). The maximum number shall apply if several conferences are attended. Certification shall be issued by one of the supervisors.

4. Other forms of acquiring key qualifications (no more than 3 credits)

It is not possible to define generally applicable regulations for this area. In the event that regular events from the field of key qualifications are attended, the credits specified therein shall be awarded. The examination board shall issue an assessment in other cases.

5. The acquisition of credits in all of the areas specified under no. 1 to 3 must be verified.

Appendix 11: Specialist regulations for the GGNB programmes

A. Responsibilities; scope of application

The Göttingen Graduate School for Neurosciences, Biophysics and Molecular Biosciences (GGNB) is an institution as defined under § 3 section 2 sentence 3. The following terms shall apply thereto. The *programme committee* shall act in place of the *examination committee* as defined under RerNatO; the provisions of RerNatO as concerns the examination committee shall apply accordingly.

The provisions hereafter shall apply to the following GGNB doctoral degree programmes:

- International degree programme 'Molecular Biology'
- International degree programme 'Neurosciences'
- Doctoral degree programme 'Biomolecules: Structure – Function – Dynamics'
- Doctoral degree programme 'Molecular Biology of Cells'
- Doctoral degree programme 'Genes and Development'
- Physics of Biological and Complex Systems
- Molecular Physiology of the Brain
- Doctoral degree programme 'Systems Neuroscience'
- Theoretical and Computational Neuroscience
- Sensory and Motor Neuroscience
- Doctoral degree programme 'Microbiology and Biochemistry'

B. Special terms

1. Qualifications for entry and selection procedure

a. The regulation concerning assessment of particular suitability shall apply to doctoral degree programmes attended at the Göttinger Graduate School for Neurosciences and Molecular Biosciences (GGNB), that is a regulation applicable to the specific degree programme shall apply accordingly.

b. The following shall apply to the other programmes as a supplement to § 4 section 1 and contrary to § 4 section 8:

aa. Applicants whose mother tongue is not English must demonstrate adequate English language skills. Adequate English language skills should be proven through minimum achievement in an internationally recognised or equivalent tests:

a) Cambridge Certificate in Advanced English at least with the grade "B";

b) Cambridge Certificate of Proficiency in English at least with the grade "C";

c) “International English Language Testing System” (IELTS), at least grade level 6.5;

d) At least 550 points in the paper-based test of the “Test of English as a Foreign Language" (paper-based TOEFL);
f) At least 90 points in the “New Internet-based TOEFL – Test of English as a Foreign Language”;
Successful completion of the test may not be more than two years before the application for admission is received. The obligation to prove a test need not be met by applicants with at least two years spent studying or working abroad in an English-speaking country within the last three years before submitting the application for admission.
bb. Other qualifications for entry shall be proof of outstanding degree programme and examination achievements and also the proof of particular suitability, ascertained in the selection interviews. The yardstick for outstanding study and examination achievements shall be in particular the performances attained by the same graduate class in the previous degree programme attended by the applicant.
cc. In the event of successful application, the applicant will be issued with a letter of admission in text form by the responsible programme coordinator or a person authorised thereto by aforementioned coordinator; this letter of admission shall contain assignment to a faculty and shall serve furthermore as a proof of entitlement to enrol.

2. Duration of the doctoral process:
The research work should have been completed within three years following admission to a programme with submission of the dissertation. A six-month extension on this period can be granted respectively on on up to two occasions, as ruled upon by the responsible programme committee on the basis of a written and reasoned application by the doctoral candidate. The responsible programme committee shall, in agreement with the GGNB Management Board, decide on an application exceeding the period as defined in sentence 2.

3. Form of the oral examination
Contrary to § 16 section 1, the oral defense takes place in English or, on application of the candidate for examination, in the German language. The programme committee must be informed if an oral defense shall be conducted in German.

C. Performance record prerequisites
Performance record prerequisites in a scope totalling at least 20 credits (C) must be acquired over the course of the doctoral degree phase. It is at the discretion of the individual doctoral degree programmes within GGNB to raise the minimum scope of 20 C to no more than 30 C. One credit is equivalent with a workload of approx. 30 hours, including time for preparation and follow-up. Deviations shall be possible if a longer residence in a foreign laboratory or extensive field research

in a foreign country is planned. Subject to consultation, additional, voluntary performances may be completed in addition to the minimum examination prerequisites. Credits can be acquired by

1. Participation in special lectures, colloquia and courses (at least 5 C)

A doctoral candidate must provide proof of participation in special lectures, colloquia and/or courses (e.g. departmental or institute courses) in a scope of at least 5 C.

a) 0.5 C shall be acquired through participation in courses or colloquia in a scope of one WLH. Completion of said achievement must be confirmed by the supervisor.

b) by active participation in a course (completion of a separate achievement), the number of credits acquired shall be increased by one additional credit. A special achievement shall be deemed to be if a course lecture is held and is assessed as passed. A doctoral candidate must, on at least one occasion per two seminars, report on the results of his or her research as part of a course lecture. Completion of said achievement must be confirmed by submission of a certificate by the teacher responsible for the course.

2. Participation in methodical courses (at least 2 C)

Over the course of the research project, doctoral candidates must successfully participate in methodical courses offered by GGNB. 1 C shall be awarded for a 2-3 day methodical course.

3. Active participation in teaching (at least 4 C or at least 8 C if the doctoral candidate is enrolled at the Faculty of Physics or the Faculty of Chemistry)

a. In order to acquire teaching and supervisory competencies, doctoral candidates must participate actively in non-independent teaching and supervision duties in a scope of at least 4 C over the course of the doctoral degree phase. Doctoral candidates acquire 1 C per WLH for the supervision of students in courses or internships, 2 C for the supervision of lab rotations with a scope of at least 6 weeks and at least 2 C for cooperation in the supervision of bachelor theses. 3 C shall be acquired for cooperation in the supervision of Diplom (German university degree) or master theses. Completion of said achievement must be confirmed in a certificate issued by a supervisor.

b. Unlike under letter a., doctoral candidates enrolled in a doctoral degree programme offered by GGNB at the Faculty of Physics or the Faculty of Chemistry must provide proof of examination prerequisites by participation in non-independent teaching in a scope of at least 8 C in accordance with the provisions defined hereafter:

aa. Credits shall be awarded in accordance with the workload defined in advance of the teaching event through supervision of exercises, courses or internships; the specified workload must be documented. Completion of said achievement must be confirmed by submission of a certificate by the teacher responsible for the teaching event.

bb. In the fulfilment of minimum requirements in a scope of 8 C, doctoral candidates

i. have to complete at least 6 C by supervision of exercises, courses or internships, including at least one exercise in the Bachelor or Master degree programme “Physics” in the Faculty of Physics, and

ii. may complete no more than 2 C by supervising a bachelor, Diplom (German university degree) or master thesis.

In the event of an interdisciplinary approach in the dissertation, the doctoral candidate may place an application that participation in teaching be completed in sections or at a different faculty other than the faculty at which the doctoral candidate is enrolled; the programme committee shall issue a ruling in this respect on the basis of a statement by the thesis committee.

4. Active participation in specialist conferences (at least 2 credits).

2-3 C (depending on the duration of the conference) shall be awarded per specialist conference in the event of successful participation (this means poster presentation or lecture). Certification shall be issued by one of the supervisors.

5. Acquisition of key qualifications (at least 1 C).

An appropriate number of credits, depending on the duration of courses, shall be awarded for the successful participation in events at the university of graduate school, intended to acquire key competencies. In the event that modules in the field of key qualifications are attended, the credits specified therein shall be binding. The responsible programme board shall issue an assessment in other cases.

6. Progress in the doctoral project

A written report must be submitted to the thesis committee and shortly thereafter an interview held at the start of the dissertation (but by no later than after 6 months) and then in intervals of no more than 12 months, intended to provide extensive information on the progress achieved within the doctoral project. The supervisor must confirm that these obligations have been met. Further, the doctoral candidate shall provide the thesis committee with information during these meetings on examination prerequisites already fulfilled. The thesis committee shall provide the doctoral candidate with advice as concerns the selection of teaching events and active participation in courses and specialist conferences. The doctoral candidate shall in each case organise the meetings of the thesis committee.

Appendix 12: Supplementary regulations for the computer science programme (PCS)

A. Special responsibilities

Unlike in § 3 section 2 p. 4, the Dean of Studies for Computer Sciences shall be responsible for doctoral matters.

B. Qualifications for entry

Applicants must provide proof of examination prerequisites equivalent with at least 120 C (credits according to ECTS) in the following fields: practical computer sciences (in particular operating systems, distributed systems, software technology, databases and information systems, telematics), theoretical computer sciences (in particular algorithm studies, theory of logical design, complexity theory, coding and cryptology, formal logic and semantics, computer algebra, artificial intelligence) and technical computer sciences (in particular knowledge in the field of hardware).

C. Proof of examination prerequisites:

At least 21 C must be acquired according to the provisions specified hereafter:

1. Research programme

- Regular participation in the advanced or research course in the supervising specialist group (3 C per candidate lecture)
- Participation in at least one specialist conference in the form of a lecture or a poster presentation (3 C per participation)

2. Degree programme (at least 3 C)

Successful participation in at least one advanced event in a field related to the dissertation.

3. Key qualifications (at least 9 C; of which at least 4 C for participation in non-independent teaching)

- e.g. participation in non-independent teaching in events held within the bachelor and master degree courses in computer sciences in consultation with the supervisor
- e.g. participation in summer schools in consultation with the supervisor
- e.g. participation in summer schools in consultation with the supervisor

Appendix 13: Supplementary regulations for the environmental informatics programme (PCS)

The doctoral programme in environmental informatics at the Faculty for Mathematics and Computer Sciences has the internationalised name 'PhD Programme in Environmental Informatics' (hereafter: PEI).

A. Special responsibilities

Unlike in § 3 section 2, the PEI Management Board shall act in place of the Dean's Office, while the PEI coordinator shall act in place of the dean.

B. Qualifications for entry

Unlike in § 4 section 1, applicants must prove completion of an at least eight.semester degree course with a degree in a consecutive master degree programme in a scope of no less than 240 C or an equivalent degree in one of the following subject areas:

a. computer science, environmental informatics, bioinformatics, geoinformatics, medical informatics, business informatics or a similar subject related to computer science,

b. a mathematics and natural sciences subject;

c. forestry or agricultural science or geography, each with a study focus biased toward computer science, or mathematics and natural science.

In this, proof of at least 30 C of examination prerequisites must be provided in the fields of mathematics / computer science. The PEI Management Board shall rule on the specialist equivalence of the previous degree course following a statement submitted by the main supervisor.

C. Thesis committee

Unlike in § 5 section 1, at least two PEI members who are authorised examiners and also members of the professoral group shall be members of the thesis committee. One member of the thesis committee must be a member of the Institute for Computer Science or must have a research ficus within the field of scientific computing. One member of the thesis committee shall have a research focus in the field of bioinformatics, geoinformatics, informatics of ecosystems, medical informatics or business informatics. A further member of the thesis committee may have a research focus in an applications subject (e.g. biology, forestry and forest ecology, agricultural science). The PEI Management Board shall rule on the specialist equivalence of the research focuses. The main supervisor must be an authorised examiner.

D. Proof of academic performance

At least 21 C must be acquired according to the provisions specified hereafter:

1. Research programme (at least 5 C)

Research achievements can be provided in the following ways:

(a) participation in summer schools, workshops and conferences in consultation with the main supervisor (1 C each), if applicable associated with a lecture or poster presentation by the candidate (then 1 C additionally);
(b) active participation in research courses or colloquia in in consultation with the main supervisor (may be associated with research reports) (2 C each)
(c) participation in special lectures in the research area of the dissertation (3 C each)
(d) participation in methodical or programming courses (2-4 C each, depending on the scope of work)

2. Teaching achievements (at least 4 C)
Successful participation in non-independent teaching and supervision duties in consultation with the main supervisor must be completed in a scope of at least 4 C, of which at least 3 C shall be in the fields listed hereafter under a) or b) in order to acquire teaching and supervision competency during the doctoral studies period; corresponding instruction from qualified teaching staff must also be proven. The teaching duties should be related to computer science. Teaching achievements can be provided in the following ways:
a. participation in non-independent teaching, e.g. in marking work or assistance or by supervising internships or software development projects with others and under supervision. 1-2 C should not be exceeded in this area, depending on the time required for the work.
b. independent teaching (e.g. one-semester supervision of an exercise group, a tutorial or a programming course). In this respect, instruction in university didactics must be provided by a responsible teacher, and weekly meetings must be held. (4 C each).
c. cooperation in the supervision of theses (credits depending on the workload).

3. Acquisition of key competencies (at least 3 C).
(a) Participation in teaching events on topics outside of the research area covered in the dissertation (3 C each)
(b) Completion of language or rhetoric courses or courses on scientific writing (1-3 C each, depending on the workload)
(c) Participation in events designed for professional or leadership qualification, e.g. industrial excursions (depending on the workload).

Appendix 14 Specialist regulations for the doctoral study programme 'Behaviour and Cognition' (BeCog)

A. Special responsibilities

The duties of the examination committee as defined in this regulation are discharged by the programme committee, convened in each case in accordance with the provisions of the regulation on assessment of particular suitability for the doctoral study programme in behaviour and cognition in its valid version.

B. Special terms

1. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A six-month extension on this period can be granted respectively on on up to four occasions, as ruled upon by the responsible programme committee on the basis of a written and reasoned application by the doctoral candidate.

2. Cumulative dissertation

a. § 10 section 5 sentence 1 notwithstanding, it is ruled that in the event of a cumulative dissertation, at least one publication must have been accepted by a peer review academic journal for publication, at least one further article must have been submitted to a peer review academic journal for publication and that the doctoral candidate must be lead author in at least two articles. It is ruled furthermore that the summarised presentation of the topics dealt with must account for a substantial portion of the dissertation manuscript; this shall be apportioned an inherent significance in the review of the dissertation.

b. Unlike in § 10 section 5 sentence 1, the instructor may provide confirmation that the publications account for the substantial part of the scientific work.

3. Form of the oral examination

Contrary to § 16 section 1, the oral defense takes place in English or, on application of the candidate for examination, in the German language. The programme committee must be informed if an oral defense shall be conducted in German.

C. Performance record prerequisites

Over the course of the doctoral degree programme, proof of examination prerequisites must be provided through the successful completion of the following modules in a scope equivalent with a total of at least 20 credits (C):

P.BeCog.1 Forschung lernen und reflektieren (4 C, 6 WLH)
P.BeCog.2 Fachliche und methodische Grundlagen (4 C, 6-8 WLH)
P.BeCog.3 Wissenschaftliche Lehre (4 C, 4 WLH)
P.BeCog.4 Wissenschaftliche Kommunikation (4 C)
P.BeCog.5 Schlüsselqualifikationen (4 C, 4-8 WLH)

2 WLH
2 WLH
2 WLH

D. Module Handbook

<table>
<tr><td colspan="3">Georg-August-Universität Göttingen
Doctoral programme in behaviour and cognition
P.BeCog.1: Acquiring knowledge of and reflecting on research</td></tr>
<tr><td colspan="2">Learning objectives and skills

The PhD students
1. shall critically appraise their research project and the literature relevant to their research area
2. shall learn to critically review scientific publications
3. shall select relevant examples from literature and shall put forward said examples in the framework of brief presentations
4. professionally present the structure of an independent scientific study and the design of the study;
5. report on progress in their doctoral work in the context of ongoing research
6. gain in-depth knowledge in subject-specific fields of knowledge and current research focus;</td><td>Scope of the module

4 Credits/
6 WLH

Workload in hours: 120
Attendance in hours: 60
Self study in hours: 60</td></tr>
<tr><td colspan="2">Courses and examinations

1. Seminar for doctoral candidates / Research seminar
2. Seminar for doctoral candidates / Research seminar
3. Seminar for doctoral candidates / Research seminar

Performance record: Student lecture (approx. 25 minutes each) and discussion</td><td>WLH individual</td></tr>
<tr><td>Options
Compulsory module</td><td>Qualifications for entry
None</td></tr>
<tr><td>Reassessment
Twice</td><td>Applicability
Doctoral programme in behaviour and cognition</td></tr>
<tr><td>Frequency of course
Semester basics
Each semester</td><td>Duration
The module can be completed in three semesters</td></tr>
<tr><td>Language
English</td><td>Maximum number of students</td></tr>
<tr><td colspan="2">Module coordinator
Prof. Dr. Julia Fischer</td></tr>
</table>

Georg-August-Universität, Göttingen
Doctoral programme in behaviour and cognition
P.BeCog.2: Subject and methodological basics

Learning objectives and skills

The PhD students

1. consolidate and specify theoretical knowledge and methodology they need for their dissertation;
2. learn how to independently gain and apply new knowledge and skills;
3. distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research;
4. developing suitable study designs for answering research questions based on their acquired knowledge.

Scope of the module

4 Credits/
6-8 WLH

Workload in hours:
120
Attendance in hours:
60-80
Self study in hours:
40-60

Courses and examinations

Specialist methodology or advanced course in the research area of the doctoral studies

or

an external subject-specific advanced course, for example as part of an inter-university doctoral studies network

Performance record prerequisites: Presentation (ungraded) or work report (max. 2 pages; ungraded) or practical performance record of methodology acquisition.

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral programme in behaviour and cognition
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Dieter Heineke	

Georg-August-Universität, Göttingen
Doctoral programme in behaviour and cognition
P.BeCog.3: Scientific teaching

Learning objectives and skills

The PhD students

1. shall put together a course under instruction and guidance (exercise or such like) and shall look after students during lab rotations, courses or in the completion of their bachelor or master thesis;
2. shall design targets, learning targets and the content of teaching units;
3. shall hence acquire skills in the planning and organisation of courses
4. shall acquire knowledge about the didactic tools used within scientific teaching
5. shall acquire skills required to reflect critically on one's own teaching
6. shall enlarge on their scientific horizon.

Scope of the module

4 Credits/
4 WLH

Workload in hours: 120
Attendance in hours: 56
Self study in hours: 64

Courses and examinations

	WLH individual
Selection in the scope of 4 WLH from:	
Conducting of a one-hour course independently (exercises, methodology course, tutorial)	1 WLH
Conducting of a two-hour course independently (exercises, methodology course, tutorial)	2 WLH
Support of at least 6-week lab rotations or a bachelor thesis	2 WLH
Support of a Diplom or master thesis	
Performance record prerequisites: Preparation of teaching material or lecture or report (max. 2 pages)	3 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral programme in behaviour and cognition
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in two semesters
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Julia Fischer	

Georg-August-Universität, Göttingen
Doctoral programme in behaviour and cognition
P.BeCog.4: Scientific communication

Learning objectives and skills

The PhD students

1. systematically summarise their research findings and present the same in front of an expert audience;
2. can defend their own research project in disciplinary and inter-disciplinary discourse.
3. consolidate their knowledge to defend their own position in controversial discussions and to counter criticism constructively;
4. develop contacts with the international scientific community;
5. become familiar with new research and topical fields

Scope of the module

4 Credits

Workload in hours: 120
Attendance in hours: 40
Self study in hours: 80

Courses and examinations

Scientific contributions to two national or international conferences
Performance record: lecture in each case (approx. 20 minutes) or poster presentation and discussion

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral programme in behaviour and cognition
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in two semesters
Language English	**Maximum number of students**
Module coordinator Prof. Dr. Julia Fischer	

Georg-August-Universität, Göttingen
Doctoral programme in behaviour and cognition
P.BeCog.5: Key competencies

Learning objectives and skills

The PhD students

1. acquire interdisciplinary methods and key competencies that are expedient to their doctoral studies and their professional start, for instance project and time management, advanced scientific writing, presentation techniques, Teaching in Higher Education, leadership skills.
2. on their own initiative seek further education in the fields of general, personal, social and professional skills, for instance by completing company internships or traineeships.

Scope of the module

4 Credits/
4-8 WLH

Workload in hours: 120
Attendance in hours: 40-80
Self study in hours: 40-80

Partial modules: Courses and examinations

The doctoral candidates consult with the thesis committee to select courses that enlarge on their key competencies, hence contributing to an improvement in their doctoral studies project and their vocational qualification. Specialised and also interdisciplinary methodical courses from those offered by the university and also other institutions can be selected.	flexible
Performance record: Presentation (ungraded) or work report (max. 2 pages; ungraded) or practical performance record for the acquisition of key competencies	

WLH individual

Options Compulsory module	**Qualifications for entry** --
Reassessment Twice	**Applicability** Doctoral programme in behaviour and cognition
Frequency of offer, semester repetition Each semester	**Duration** The module can be completed in one semester
Language German, English	**Maximum number of students**
Module coordinator Prof. Dr. Julia Fischer	

Appendix 15 Specialist provisions for the doctoral study programme Biological Diversity and Ecology

A. Special responsibilities

The duties of the examination committee as defined in this regulation are discharged by the programme committee, convened in each case in accordance with the provisions of the regulation on assessment of particular suitability for the doctoral study programme in biological diversity and ecology in its valid version.

B. Special terms

1. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A six-month extension on this period can be granted respectively on on up to two occasions, as ruled upon by the thesis committee on the basis of a written and reasoned application by the doctoral candidate. The programme committee shall decide on an application exceeding the period as defined in sentence 2.

2. Dissertation

a. § 10 section 3 sentence 1 notwithstanding, it is ruled that the dissertation shall be written in the English language. Any exceptions hereto must be brought before the programme committee in a reasoned application.

b. § 10 section 5 sentence 1 notwithstanding, it is ruled that in the event of a cumulative dissertation, at least one publication must have been accepted by a peer review academic journal for publication, at least one further manuscript must have been submitted to a peer review academic journal for publication and that the doctoral candidate must be lead author in at least two manuscripts. It is ruled furthermore that the summarised presentation of the topics dealt with must account for a substantial part of the dissertation manuscript; this shall be apportioned particular significance in the review of the dissertation.

3. Form of the oral examination

§ 16 section 1 sentence 1 notwithstanding, it is ruled that the oral defense shall be conducted in the English language. The oral defense may be conducted in the German language in justified exceptions. The doctoral candidate shall in these cases bring the matter before the programme committee within the framework of a justified application.

4. Gradings and distinctions

Individual gradings shall at all times be issued for the dissertation and the oral defense (§ 17 section 1 sentence 4), listed separately on the examination certified as specified under § 17 section 3 sentence 2.

C. Proof of examination prerequisites

Over the course of the doctoral degree programme, proof of examination prerequisites must be provided through the successful completion of the following modules in a scope equivalent with a total of at least 22 ECTS credits (C):

P.Biodiv.01 Scientific project management (3 C, 2 SWH)
P.Biodiv.02 Advanced scientific qualification in theory and practice (6 C, 4 SWH)
P.Biodiv.03 Scientific teaching (3 C, 2 SWH)
P.Biodiv.04 Scientific presentation and communication (4 C)
P.Biodiv.05 Key competencies (6 C, 4 SWH)

The thesis committee may approve that other courses may be attended in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

1 SWH
1 SWH or
2 SWH

D. Module Handbook

Georg-August-Universität Göttingen
Doctoral programme biological diversity and ecology
P.Biodiv.01: Scientific project management

Learning objectives and skills

The doctoral students

1. shall critically appraise their research project and the literature relevant to their research area;
2. shall learn to critically review scientific publications;
3. shall select relevant examples from literature and shall put forward said examples in the framework of brief presentations;
4. shall present the concept of an independent scientific study and the design of the study in a specialised form;
5. shall report on progress in their doctoral work in the context of ongoing research;
6. shall acquire in-depth knowledge in subject-specific areas of knowledge and current fields of research;

Scope of the module

3 Credits/
2 SWH

Workload in hours: 90
Attendance in hours: 28
Private study in h: 62

Courses and examinations

1. Seminar for doctoral students / Research seminar
2. Seminar for doctoral students / Research seminar
or
3. Seminar for doctoral students / Research seminar

It is required to take part in two 1 SWH colloquia or in one 2 SWH colloquium over two semesters in accordance with the study plan agreed individually with the thesis committee.

Proof of examination prerequisites: Lecture (approx. 25 minutes each) and subsequent discussion

SWH individual

Options Compulsory module	**Entry qualifications** None
Reassessment Twice	**Applicability** Doctoral programme in biological diversity and ecology
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in two semesters
Language English	**Maximum number of students**
Module examiner PD Dr. Dirk Gansert	

4 SWH
or two times
2 SWH

Georg-August-Universität Göttingen
Doctoral programme biological diversity and ecology
P.Biodiv.02: Advanced scientific qualification in theory and practice

Learning objectives and skills

The doctoral students

1. consolidate and specify theoretical knowledge and methodology they need for their dissertation;
2. learn how to independently acquire and apply new knowledge and skills in a practical environment;
3. distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research;
4. develop on the basis of the knowledge acquired suitable experiments and analysis designs in order to respond to hypotheses.

Scope of the module

6 Credits/
4 SWH

Workload in hours: 180
Attendance in hours: 56
Private study in h: 124

Courses and examinations

Specific specialist lectures, advanced seminars and methodical and advanced courses in the selected field of doctoral studies, also suitable courses in master degree courses in related specialist fields as specified by the thesis committee or
an external subject-specific advanced course, for example as part of an inter-university doctoral studies network.

Proof of examination prerequisites: Work report, no more than 6 pages (ungraded)

SWH individual

Options Compulsory module	**Entry qualifications** None
Reassessment Twice	**Applicability** Doctoral programme biological diversity and ecology
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language English or German	**Maximum number of students**
Module examiner PD Dr. Dirk Gansert	

Georg-August-Universität Göttingen
Doctoral programme biological diversity and ecology
P.Biodiv.03: Scientific teaching

Learning objectives and skills	**Scope of the module**
The doctoral students 1. shall put together a course under instruction and guidance (exercise or such like) and shall look after students in exercises, courses or in the completion of their bachelor or master thesis; 2. shall design targets, learning targets and the content of teaching units; 3. shall hence acquire skills in the planning and organisation of courses; 4. shall acquire knowledge about the didactic tools used within scientific teaching, 5. shall acquire skills required to reflect critically on one's own teaching. 6. shall enlarge on their scientific horizon.	3 Credits/ 2 SWH Workload in hours: 90 Attendance in hours: 28 Private study in h: 62

Courses and examinations	SWH individual
Implementation of an independent, two-hour course lasting the entire semester (course, tutorial, exercise, methodology course) or a block course of equivalent length or supervision in a master thesis or no more than two bachelor theses.	2 SWH
Proof of examination prerequisites: Reflection on the supervision and teaching relationship and on the sequence of the project or teaching unit in a report form (no more than 6 pages).	

Options	**Entry qualifications**
Compulsory module	None
Reassessment	**Applicability**
Twice	Doctoral programme biological diversity and ecology
Frequency of course **Semester basics**	**Duration**
Each semester	The module can be completed in two semesters
Language	**Maximum number of students**
English or German	

Module examiner
PD Dr. Dirk Gansert

Georg-August-Universität Göttingen
Doctoral programme biological diversity and ecology
P.Biodiv.04: Scientific presentation and communication

Learning objectives and skills

The doctoral students

1. systematically summarise their research findings and present the same in front of an expert audience;
2. are equipped to defend their own research project in disciplinary and inter-disciplinary discourses;
3. consolidate their knowledge to defend their own position in controversial discussions and to counter criticism constructively;
4. develop contacts with the international scientific community;
5. become familiar with new research and topical fields.

Scope of the module

4 Credits

Workload in hours: 120
Attendance in hours: 42
Private study in h: 78

Courses and examinations

Scientific contributions to two national or international conferences.
Proof of achievement: lecture in each case (approx. 20 minutes) or poster presentation and discussion

Options Compulsory module	**Entry qualifications** None
Reassessment Twice	**Applicability** Doctoral programme biological diversity and ecology
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in two semesters
Language English	**Maximum number of students**

Module examiner
PD Dr. Dirk Gansert

Georg-August-Universität Göttingen
Doctoral programme biological diversity and ecology
P.Biodiv.05: Key competencies

Learning objectives and skills

The doctoral students

1. acquire interdisciplinary methods and key competencies that are expedient to their doctoral studies and their professional start, for instance project and time management, work organisation, advanced scientific writing, presentation techniques, Teaching in Higher Education, leadership skills.
2. on their own initiative seek further education in the fields of language, general, personal, social and professional skills, the latter for instance by completing company internships or traineeships.

Scope of the module

6 Credits/
4 SWH

Workload in hours: 180
Attendance in hours: 56
Private study in h: 124

Partial modules: Courses and examinations

The doctoral candidates consult with the thesis committee to select courses that enlarge on their key competencies, hence contributing to an improvement in their doctoral studies project and their vocational qualification. Specialised and also interdisciplinary methodical courses from those offered by the university and also other institutions can be selected.	flexible
Proof of examination prerequisites: Work report, no more than 6 pages	

SWH individual

Options Compulsory module	**Entry qualifications** None
Reassessment Twice	**Applicability** Doctoral programme biological diversity and ecology
Frequency of offer, semester repetition Each semester	**Duration** The module can be completed in one semester
Language English or German	**Maximum number of students**
Module examiner PD Dr. Dirk Gansert	

Appendix 16 Specific subject regulations for the doctoral degree course "Mathematical Sciences"

A. Special responsibilities

An examination committee shall not be convened; the Dean's Office shall act in its place. Contrary to § 3 section 2 sentence 4, the tasks of the spokesperson of the examination committee shall be fulfilled as specified in this regulation by the Dean of Studies for mathematics.

B. Special terms

1. Contrary to § 10 section 5, it is not mandatory that manuscripts submitted within the framework of a cumulative dissertation shall have been accepted by a peer review journal.

2. The research work should have been completed within three years following admission by submission of the dissertation. A six-month extension on this period can be granted respectively on on up to four occasions, as ruled upon by the Dean's Office on the basis of a written and reasoned application by the doctoral candidate.

3. Parts or all of the doctoral degree course "Mathematical Sciences" can be completed as part-time studies. In this respect students must prove by submission of suitable documents that on an average of the semester, they do not have more than 20 hours of time per week to engage in the research and their other commitments as specified in the supervision agreement. The deadline as defined under no. 2 shall be extended by one semester for two semester of part-time studies, respectively; this shall apply accordingly in the event that part-time studies lasted one semester only. Documents as required under sentence 1 shall be deemed only such as are issued by third parties; this requirement of validation by documents as specified under sentence 1 may be waived insofar as it shall be considered unduly severe. The Dean's Office shall decide in this respect.

4. Contrary to § 16 section 1, it shall be deemed standard that the oral defense is conducted in the English language. An oral defense in the German language is possible insofar as the students have proven adequate German-language skills (on the level of DSH-2 or higher).

C. Doctoral studies

Within the framework of the doctoral studies, proof of examination prerequisites must be provided through the successful completion of the following modules in a scope equivalent with a total of at least 30 credits (C):

1. Research programme

P.Mat.7101	Wissenschaftliche Kolloquien und Seminare	(3 C, 2 WLH)
P.Mat.7102	Forschungsaktivitäten auf mathematischen Konferenzen	(3 C, 2 WLH)

2. Doctoral degree programme

P.Mat.7201	Vertiefungsstudium im Forschungsgebiet	(6 C, 4 WLH)
P.Mat.7202	Spezialisierungsstudium im Forschungsgebiet	(3 C, 2 WLH)
P.Mat.7203	Erweiterungsstudium ergänzend zum Forschungsgebiet	(3 C, 2 WLH)

3. Accompanying seminars

P.Mat.7301	Begleitseminar zur Einarbeitung in ein Forschungsgebiet	(3 C, 2 WLH)
P.Mat.7302	Begleitseminar zur wissenschaftlichen Behandlung mathematischer Fragestellungen	(3 C, 2 WLH)
P.Mat.7303	Begleitseminar zur Dokumentation mathematischer Forschungs-Results	(3 C, 2 WLH)

4. Key competences

P.Mat.7901	Schlüsselqualifikation für die universitäre Lehre	(3 C, 2 SWS)

The module P.Mat.7901 may be replaced with a module from the cross-faculty key competency modules by the Faculty for Mathematics and Computer Science, from the university's cross-faculty key competencies modules or a module in Teaching in Higher Education.

D. Other study programmes

Upon mutual agreement of the doctoral candidates or the doctoral candidate and the thesis committee and notwithstanding the provision as concerns the transfer of study credits, the Dean's Office is entitled to resolve that in place of the doctoral studies as specified under letter C., the curriculum of a doctoral programme of relevant subject matter (e.g. research training group) shall be completed successfully in a scope equivalent with at least 20 C; acceptance to the corresponding degree programme must be proven without delay.

E. Module descriptions

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7101: Scientific colloquia and courses

Learning objectives

a) scientific contribution in a research area
b) Review of scientific talks at mathematical conferences

Competencies

a. Fundamental ability to engage in scientific appraisal and discourse within the framework of academic events of research-based relevance to the candidate's own research area
b. Presentation of research results to a specialist audience

Scope of the module

3 C / 2 WLH

Workload in hours: 90
Attendance in hours: 28
Self study in hours: 62

Courses and examinations

Advance graduate seminar

Performance record prerequisites:

- Student lecture (approx. 75 minutes) and discussion

WLH individual
2 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Mathematical Sciences"
Frequency of course Each semester	**Duration** The module can be completed in one semester
Language English or German	**Maximum number of students** None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7102: Research activities at mathematical conferences

Learning objectives

a) Participation in external scientific conferences in the research area
b) Review of scientific lectures at mathematical conferences
c) Preparation of a specialist lecture to present own results at a conference outside of Göttingen

Competencies

a) Acquisition of more advance skills in scientific appraisal and discourse within the framework of academic events of research-based relevance to the candidate's own research area
b) Presentation of own research results to a specialist audience

Scope of the module

3 C / 4 WLH

Workload in hours: 90
Attendance in hours: 28
Conference in hours: 28
Self study in hours: 36

Courses and examinations

a) Advance graduate seminar
b) External block course (conference)

Performance record prerequisites:

- Student lecture (approx. 60 minutes) and discussion

WLH individual

a) 2 WLH
b) 2 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Mathematical Sciences"
Frequency of course Each semester	**Duration** The module can be completed in one semester
Language English or German	**Maximum number of students** None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7201: Advanced studies in the research area

Learning objectives

a) Acquisition of advanced mathematical contents in the area of specialisation
b) Knowledge of the systematic structure of a research area with direct relevance to the dissertation topic

Competencies

a) Command of the methodologies typically applied in the research areas in the order to solve problems in the research area
b) Ability to design solution strategies and to present solutions in problems typical of the research area

Scope of the module

6 C / 6 WLH

Workload in hours: 180
Attendance in hours: 56
Exercises in hours: 28
Self study in hours: 96

Courses and examinations

- Lecture
- Exercises

Performance record prerequisites:

- Oral examination (approx. 20 minutes)

WLH individual

- 4 WLH
- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7202: Advanced studies in the research area

Learning objectives

a) Acquisition of advanced mathematical contents in the area of specialisation
b) Knowledge of the systematic structure of a research area with direct relevance to the dissertation topic

Competencies

- Command of essential methodologies in the area of specialisation
- Ability to classify results in own research area within a broader context

Scope of the module

3 C / 4 WLH

Workload in hours: 90
Attendance in hours: 28
Exercises in hours: 28
Self study in hours: 34

Courses and examinations

- Lecture
- Exercises, alternatively course

Performance record prerequisites:

- Oral examination (approx. 20 minutes)

WLH individual

- 2 WLH
- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7203: Extended studies in addition to the research area

Learning objectives

a) Expansion on mathematical skills in the area of specialisation
b) Expansion on knowledge of the systematic structure of a research area with direct relevance to the dissertation topic

Competencies

- Command of an expanded methodical repertoire in the area of specialisation
- Ability to classify results in own research area within a broader context

Scope of the module

3 C / 4 WLH

Workload in hours: 90
Attendance in hours: 28
Exercises in hours: 28
Self study in hours: 34

Courses and examinations

- Lecture
- Exercises, alternatively course

Performance record prerequisites:

- Oral examination (approx. 20 minutes)

WLH individual

- 2 WLH
- 2 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Mathematical Sciences"
Frequency of course Each semester	**Duration** The module can be completed in one semester
Language English or German	**Maximum number of students** None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7301: Accompanying course for familiarisation with a research area

Learning objectives

- Acquisition of summarised knowledge of essential literature within an active research area

Competencies

- Advanced methodical competency for the treatment of current research results
- The ability to produce current research results on the basis of critical study of recent specialist literature

Scope of the module

3 C / 2 WLH

Workload in hours: 90
Attendance in hours: 28
Self study in hours: 62

Courses and examinations

- Course (2 WLH)

Performance record prerequisites:

- Lecture (about 60 minutes) and discussion

WLH individual

- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7302: Accompanying course on the scientific processing mathematical questions

Learning objectives

- Expansion of the methodical repertoire for solution strategies to process mathematical problems

Competencies

- The ability to formulate mathematical problems and describe adequate solution strategies
- The ability to communicate ideas for solutions and difficulties

Scope of the module

3 C / 2 WLH

Workload in hours: 90
Attendance in hours: 28
Self study in hours: 62

Courses and examinations

- Advance graduate seminar

Performance record prerequisites:

- Lecture (about 60 minutes) and discussion

WLH individual

- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7303: Accompanying course on the documentation of mathematical questions

Learning objectives

- Development of a personal writing style for scientific work, oriented towards the appropriate standards of adequate scientific work and the format designed for specialised mathematical sciences

Competencies

- The ability to formulate mathematical problems and describe corresponding solution strategies
- The ability to document the results of mathematical research
- Knowledge of the rules of good scientific practice

Scope of the module

3 C / 2 WLH

Workload in hours: 90
Attendance in hours: 28
Self study in hours: 62

Courses and examinations

- Advance graduate seminar

Performance record prerequisites:

- Lecture (about 60 minutes) and discussion

WLH individual

- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Georg-August-Universität, Göttingen
Doctoral degree course "Mathematical Sciences"
P.Mat.7901: Key qualification for university teaching

Learning objectives

a) The ability to communicate mathematical contents to first-semester students and to lead a heterogeneous study group
b) Competent deployment of various teaching methods and visualisation technologies
c) Confident manner

Competencies

- Rhetorical and presentation skills
- Teamwork skills (in particular the ability to motivate and a sure hand in dealing with conflict situations)
- Time management
- Intercultural communication if necessary

Scope of the module

3 C / 2 WLH

Workload in hours: 90
Attendance in hours: 28
Self study in hours: 62

Courses and examinations

- Exercises

Performance record prerequisites:

- Teaching of a practice session (approx. 90 minutes)

WLH individual

- 2 WLH

Options
Compulsory module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Mathematical Sciences"

Frequency of course
Each semester

Duration
The module can be completed in one semester

Language
English or German

Maximum number of students
None

Module coordinator
Dean of Studies for Mathematics

Appendix 17 Specific subject regulations for the doctoral degree course "Geography"

A. Special responsibilities

1. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A six-month extension on this processing time can be granted respectively on on up to four occasions, as ruled upon by the thesis committee on the basis of a written and reasoned application by the doctoral candidate. In addition to this, a six-month extension on this period can be granted respectively on on up to four occasions, as ruled upon by the responsible programme committee on the basis of a written and reasoned application by the doctoral candidate.

2. Cumulative dissertation

a. The following is provided for in addition to § 10 section 5 sentence 3: The examination committee shall rule on the application of the doctoral candidate on the basis of a written presentation that shall at least consider the following aspects and must be submitted with an endorsement by the thesis committee:

- Topic of the study:
- List of the publications that will be considered within the framework of the cumulative dissertation, including details on
    - Authorship and in particular the contribution to the publication made by the doctoral candidate in the event of co-authorship,
    - Journal or series in which publication has or will take place,
    - Progress in the procedure (review, acceptance, publication);
- Contribution that the selected publications make to the topic (common theme)

b. § 10 section 5 sentence 1 notwithstanding, it is ruled that in the event of a cumulative dissertation, at least one publication must have been accepted by a peer review academic journal for publication, at least one further manuscript must have been positively reviewed in a peer review academic journal for publication and that the doctoral candidate should be lead author in at least two manuscripts.

3. Oral examination

Contrary to § 16 section 1, it shall be deemed standard that the oral defense is conducted in the English language. An oral defense in the German language is possible provided the students have proven adequate German-language skills (on the level of DSH-2 or higher).

B. Doctoral studies

Over the course of the doctoral degree programme, proof of examination prerequisites must be provided in a scope equivalent with a total of at least 20 credits (C):

1. The following module with a rating of 5 C should be successfully completed.

P.Geg.1 Fachliche und methodische Vertiefung (5 C, 2 WLH)

2. At least three of the following modules with a total rating of 15 C must be completed successfully:

P.Geg.2 Forschung reflektieren (5 C, 2 WLH)
P.Geg.3 Wissenschaftliche Kommunikation (5 C)
P.Geg.4 Wissenschaftliche Lehre (5 C)
P.Geg.5 Schlüsselqualifikationen (5 C, 2 WLH)
P.Geo.5 Wissenschaftliches Schreiben (5 C, 2 WLH)

The thesis committee may approve that other courses may be completed in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

C. Module descriptions

Georg-August-Universität, Göttingen
Doctoral degree course "Geography"
P.Geg.1: Subject and methodological specialisation

Learning objectives and skills

The doctoral students

1. consolidate and specify theoretical knowledge and methodology they need for their dissertation;
2. distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research;
3. professionally present the structure of an independent scientific study and the design of the study;
4. shall report on progress in their doctoral work in the context of ongoing research;

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

Specialised, advanced course on theory and methodology in the specialist area of the doctoral studies

Or:

an external field-specific specialisation course, for example, as part of an inter-university PhD study network

Performance record: Work report, no more than 2 pages

WLH individual

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geography"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester.
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Gerhard Gerold	

1 WLH
1 WLH

Georg-August-Universität, Göttingen
Doctoral degree course "Geography"
P.Geg.2: Reflecting on research

Learning objectives and skills

The doctoral students

1. gain in-depth knowledge in subject-specific domains and current research directions;
2. critically appraise the theoretical and methodical strategies in other research projects;
3. and in this shall reflect on their own research project.

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

1. Research Colloquium/Geographic Colloquium
2. Research Colloquium/Geographic Colloquium

Candidates must attend the aforementioned events in at least two semesters (at least 14 dates in total) as specified in the study plan agreed individually with the thesis committee.

Relevant colloquium contributions shall then be considered in relation to the candidate's own research project within the scope of a subsequent reflection report.

Proof of examination prerequisites: Reflection report, max. 3. pages

WLH individual

Options
Optional required module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Geography"

Frequency of course
Semester basics
Each semester

Duration
The module can be completed in two semesters

Language
German or English

Maximum number of students

Module coordinator
Prof. Dr. Christoph Dittrich

Georg-August-Universität, Göttingen
Doctoral degree course "Geography"
P.Geg.3: Scientific communication

Learning objectives and skills

The doctoral students

1. systematically summarise their research findings and present the same in front of an expert audience;
2. are equipped to defend their own research project in disciplinary and inter-disciplinary discourses;
3. consolidate their knowledge to defend their own position in controversial discussions and to counter criticism constructively;
4. develop contacts with the international scientific community;
5. become familiar with new research and topical fields.

Scope of the module

5 Credits

Workload in hours: 150
Attendance in hours: 30
Self study in hours: 120

Courses and examinations

Scientific papers in at least one national or international conference
Performance record: one lecture (approx. 20 minutes) or poster presentation with discussion

Options Optional required module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geography"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language English	**Maximum number of students**
Module coordinator Prof. Dr. Martin Kappas	

Georg-August-Universität, Göttingen
Doctoral degree course "Geography"
P.Geg.4: Wissenschaftliche Lehre

Learning objectives and skills

The doctoral students

1. can put together a course under instruction and supervision;
2. can design targets, learning targets and the content of teaching units;
3. shall hence acquire skills in the planning and organisation of courses;
4. shall acquire knowledge about the didactic tools used within scientific teaching,
5. shall acquire skills required to reflect critically on one's own teaching.
6. shall enlarge on their scientific horizon.

Scope of the module

5 Credits

Workload in hours: 150
Attendance in hours: 30
Self study in hours: 120

Courses and examinations

Completion of a two-hour course or two one-hour courses (exercise, course, methodical course or such like)
Performance record prerequisites: Reflection report on the teaching circumstances and the events of the teaching unit, max. 2 pages

Options Optional required module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geography"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Heiko Faust	

Georg-August-Universität, Göttingen
Doctoral degree course "Geography"
P.Geg.5: Key competencies

Learning objectives and skills

The doctoral students
acquire specialist or interdisciplinary methods and key competencies that are expedient to their doctoral studies and their professional start, for instance project and time management, advanced scientific writing, presentation techniques, Teaching in Higher Education, leadership skills, language skills.

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

The doctoral candidates consult with the thesis committee to select courses that enlarge on their key competencies, hence contributing to an improvement in their doctoral studies project and their vocational qualification. Specialised and also interdisciplinary methodical courses from those offered by the university and also other institutions can be selected.

Performance record: Work report, no more than 2 pages

WLH individual

2 WLH

Options Optional required module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geography"
Frequency of offer, semester repetition Each semester	**Duration** The module can be completed in one semester
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Heiko Faust	

Appendix 18 Specific subject regulations for the doctoral degree course "Geoscience"

A. Special responsibilities

1. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A six-month extension on this processing time can be granted respectively on on up to four occasions, as ruled upon by the thesis committee on the basis of a written and reasoned application by the doctoral candidate. In addition to this, a six-month extension on this period can be granted respectively on on up to four occasions, as ruled upon by the responsible programme committee on the basis of a written and reasoned application by the doctoral candidate.

2. Cumulative dissertation

a. The following is provided for in addition to § 10 section 5 sentence 3: The examination committee shall rule on the application of the doctoral candidate on the basis of a written presentation that shall at least consider the following aspects and must be submitted with an endorsement by the thesis committee:

- Topic of the study:
- List of the publications that will be considered within the framework of the cumulative dissertation, including details on
    - Authorship and in particular the contribution to the publication made by the doctoral candidate in the event of co-authorship,
    - Journal or series in which publication has or will take place,
    - Progress in the procedure (review, acceptance, publication);
- Contribution that the selected publications make to the topic (common theme)

b. § 10 section 5 sentence 1 notwithstanding, it is ruled that in the event of a cumulative dissertation, at least one publication must have been accepted by a peer review academic journal for publication, at least one further manuscript must have been positively reviewed in a peer review academic journal for publication and that the doctoral candidate should be lead author in at least two manuscripts.

3. Oral examination

Contrary to § 16 section 1, it shall be deemed standard that the oral defense is conducted in the English language. An oral defense in the German language is possible provided the students have proven adequate German-language skills (on the level of DSH-2 or higher).

B. Doctoral studies

Over the course of the doctoral degree programme, proof of examination prerequisites must be provided in a scope equivalent with a total of at least 20 credits (C):

1. The following two modules with a rating of 10 C must be successfully completed:

P.Geo.1 Fachliche und methodische Vertiefung (5 C, 2 WLH)
P.Geo.2 Wissenschaftliche Kommunikation (5 C, 1 WLH)

2. At least two of the following modules with a total rating of 10 C must be completed successfully:

P.Geo.3 Forschung reflektieren (5 C, 2 WLH)
P.Geo.4 Wissenschaftliche Lehre (5 C)
P.Geo.5 Wissenschaftliches Schreiben (5 C, 2 WLH)
P.Geo.6 Schlüsselqualifikationen (5 C, 2 WLH)

The thesis committee may approve that other courses may be completed in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

C. Module descriptions

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.1: Subject and methodological specialisation

Learning objectives and skills

The doctoral students

1. consolidate and specify theoretical knowledge and methodology they need for their dissertation;
2. distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research;
3. professionally present the structure of an independent scientific study and the design of the study;
4. shall report on progress in their doctoral work in the context of ongoing research;

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

Specialised, advanced course on theory and methodology in the specialist area of the doctoral studies

Or:

an external field-specific specialisation course, for example, as part of an inter-university PhD study network

Performance record: Work report, no more than 2 pages

WLH individual

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geoscience"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester.
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Gerhard Wörner	

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.2: Scientific communication

Learning objectives and skills

The doctoral students

1. systematically summarise their research findings and present the same in front of an expert audience;
2. are equipped to defend their own research project in disciplinary and inter-disciplinary discourses;
3. consolidate their knowledge to defend their own position in controversial discussions and to counter criticism constructively;
4. develop contacts with the international scientific community;
5. become familiar with new research and topical fields.

Scope of the module

5 Credits/
1 WLH

Workload in hours: 150
Attendance in hours: 44
Self study in hours: 106

Courses and examinations

	WLH individual
Scientific papers in at least one national or international conference and participation in a departmental course	
Performance record: one lecture (approx. 20 minutes) or poster presentation with discussion	1 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geoscience"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language English	**Maximum number of students**
Module coordinator Prof. Dr. Werner F. Kuhs	

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.3: Reflecting on research

Learning objectives and skills

The doctoral students

1. gain in-depth knowledge in subject-specific domains and current research directions;
2. critically appraise the theoretical and methodical strategies in other research projects;
3. and in this shall reflect on their own research project.

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

Geosciences Colloquium/ University Research Colloquium/ Departmental Research Course

Candidates must attend the above-mentioned events in at least two semesters (at least 14 dates in total) as specified in the study plan agreed individually with the thesis committee.

Relevant colloquium/course contributions shall then be considered in relation to the candidate's own research project within the scope of a subsequent reflection report.

Performance record prerequisites: Reflection report, max. 3. pages

WLH individual

Options
Optional required module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Geoscience"

Frequency of course
Semester basics
Each semester

Duration
The module can be completed in two semesters

Language
German or English

Maximum number of students

Module coordinator
Prof. Dr. Andreas Pack

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.4: Wissenschaftliche Lehre

Learning objectives and skills

The doctoral students

1. can put together a course under instruction and supervision;
2. can design targets, learning targets and the content of teaching units;
3. shall hence acquire skills in the planning and organisation of courses;
4. shall acquire knowledge about the didactic tools used within scientific teaching,
5. shall acquire skills required to reflect critically on one's own teaching.
6. shall enlarge on their scientific horizon.

Scope of the module

5 Credits

Workload in hours: 150
Attendance in hours: 30
Self study in hours: 120

Courses and examinations

Completion of a two-hour course or two one-hour courses (exercise, course, methodical course or such like)
Performance record prerequisites: Reflection report on the teaching circumstances and the events of the teaching unit, max. 2 pages

Options Optional required module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree course "Geoscience"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language German or English	**Maximum number of students**
Module coordinator Prof. Dr. Sharon Webb	

2 WLH

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.5: Academic writing

Learning objectives and skills

Doctoral students practice the scientific presentation of their work. They learn to discuss results and to appraise them critically. They are equipped to discuss their own work and work by their colleagues.

The doctoral students can present and discuss the current status and results of their doctoral thesis. Under instruction and supervision, they are able to prepare and write a scientific manuscript on their own research topic. They acquire competencies in critical reflection on their own scientific discussion and expand their scientific horizon.

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

A scientific manuscript must be created under instruction and supervision and then submitted to a peer-reviewed journal.

Performance record prerequisites: Presentation (max. 30 minutes) and subsequent Q&A (at least 15 minutes) in connection with a manuscript on current research results that has been submitted for publication

WLH individual

Options
Optional required module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Geoscience"

Frequency of course
Semester basics
Each semester

Duration
The module can be completed in one semester.

Language
German or English

Maximum number of students

Module coordinator
Prof. Dr. Jonas Kley

Georg-August-Universität, Göttingen
Doctoral degree course "Geoscience"
P.Geo.6: Key competencies

Learning objectives and skills

The doctoral students
acquire specialist or interdisciplinary methods and key competencies that are expedient to their doctoral studies and their professional start, for instance project and time management, advanced scientific writing, presentation techniques, Teaching in Higher Education, leadership skills, language skills.

Scope of the module

5 Credits/
2 WLH

Workload in hours: 150
Attendance in hours: 28
Self study in hours: 122

Courses and examinations

The doctoral candidates consult with the thesis committee to select courses that enlarge on their key competencies, hence contributing to an improvement in their doctoral studies project and their vocational qualification. Specialised and also interdisciplinary methodical courses from those offered by the university and also other institutions can be selected.

Performance record: Work report, no more than 2 pages

WLH individual

2 WLH

Options
Optional required module

Qualifications for entry
None

Reassessment
Twice

Applicability
Doctoral degree course "Geoscience"

Frequency of offer, semester repetition
Each semester

Duration
The module can be completed in one semester

Language
German or English

Maximum number of students

Module coordinator
Prof. Dr. Daniel Jackson

Appendix 19 Specialist regulations for the doctoral study programme “Catalysis for Sustainable Synthesis” (CaSuS)

A. Special responsibilities

The tasks of the examination committee as defined in this regulation shall be fulfilled by the programme committee. It has four members, of which three are from the professoral group from among the working group leads participating in the course of study and one is from the group of doctoral candidates. The members are appointed by the respective group representatives on the faculty council in the Faculty of Chemistry. The tenure is two years, while that of the member from the group of doctoral candidates is one year. The programme committee shall elect a chairperson as well as his or her deputy from the professoral group. The member from the group of doctoral candidates only has an advisory vote in the assessment and transfer of credits for study and examination components.

B. Special terms

1. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A one-year extension on this period can be granted respectively on up to two occasions, as ruled upon by the responsible programme committee on the basis of a written and reasoned application by the doctoral candidate.

2. Admission to the doctoral examination

Supplementary to § 8 sections 1 and 2, the prerequisite for admission to the doctoral examination is that at least one original paper with co-authorship by the doctoral candidate was accepted for publication in a peer review academic journal; the programme committee decides about exceptions on the basis of a written application by the doctoral candidate.

3. Form of dissertation

a. § 10 section 5 notwithstanding, a cumulative dissertation is not permitted in the doctoral study programme "Catalysis for Sustainable Synthesis” (CaSuS).

b. § 10 section 3 sentence 1 notwithstanding, it is ruled that the dissertation shall be written in the English language.

4. Form of the oral examination

§ 16 section 1 notwithstanding, it is ruled that the oral defense shall be conducted in the English language.

C. Performance record

Over the course of the doctoral studies, performance records must be completed successfully in a scope of at least 22 credits (C) according to the following regulations:

1. Compulsory modules

The following compulsory modules with a rating of 19 C should be successfully completed:

P.Che.1601	Latest developments in catalysis research	(4 C/ 4 WLH)
P.Che.1602	Modern methods and practice in catalytic chemistry	(4 C/ 5 WLH)
P.Che.1603	Catalysis in the chemical context	(6 C/ 6 WLH)
P.Che.1604	Presentation and discussion of research results	(5 C/ 8 WLH)

2. Optional required modules

One module from the area of key competencies with a rating of at least 3 C should be successfully completed. One of the following modules offered by the Central Institution for Languages and Key Competencies (ZESS) is recommended; however it is also possible to take up other modules offered by ZESS without a separate application:

SK.AS.FK-3	Leadership skills: Intercultural communication skills	(3 C/ 2 WLH)
SK.FS.E-IC-C1-1	Intercultural communication - English	(3 C/ 2 WLH)

3. Voluntary courses

Apart from the modules named in nos. 1 and 2, courses with an in-depth subject matter are offered; attendance is voluntary. In addition to that, doctoral candidates should participate in non-independent teaching.

4. The thesis committee may approve that other courses may be completed in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

D. Module Handbook

Georg-August-Universität Göttingen
Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Module P.Che.1601 "Latest developments in catalysis research"

Learning objectives and skills

After successfully completing the module, the doctoral candidate

- should have in-depth knowledge of the current research topics of homogeneous and heterogeneous catalysis in technology and the laboratory;
- must know modern methods of catalytic synthesis of functional macromolecular compounds;
- should have knowledge of the applications of catalytic reactions in organic synthesis chemistry;
- should have knowledge of selected developments in the area of enzymatic and bio-inspired catalysis;
- should be able to accurately explain the current research trends in catalytic chemistry.

C/WLH total

4 C/ 4 WLH

Workload: 120 h.
thereof
Attendance hours: 56 hrs
Self-study 64 hrs

Partial modules: Courses and performance record

1. Lecture “Latest developments in catalysis research”

Series of lectures
Performance record for 1.: Written examination (60 minutes)

2. Partial module: Workshop "Highlights of catalysis research"

Workshop
Performance record for 2.: Written examination (60 minutes) Requirements for participation in the performance record: Proof of regular participation in the courses of the workshop "Highlights of catalysis research"

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Frequency of course **Semester basics** Yearly	**Duration** The module can be completed in two semesters
Language English	**Maximum number of students** 30

Module coordinator
Prof. Dr. Sven Schneider

Georg-August-Universität, Göttingen
Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Module P.Che.1602 "Modern methods and practice in catalytic chemistry"

Learning objectives and skills	**C/WLH total**
After successfully completing the module, the doctoral candidate • should have in-depth knowledge of the application of spectroscopic methods in catalysis research (part 1), • should understand and be able to apply kinetic methods of mechanistic explanation of catalytic processes (part 2), • should know modern high-throughput procedures and automated syntheses in the area of catalysis research (part 3), • should be familiar with the use of computer methods in catalysis research (part 4), and • should have gained sound insights in the application of selected catalytic procedures and processes in industrial practice (part 5). **Integrative teaching of key competencies in part 5**: The doctoral candidate has learnt about the areas of activity of catalysis chemists in the real work-environment.	4 C / 5 WLH *thereof* Share of key competencies: 1 C / 2 WLH Workload: 120 h. thereof Attendance hours: 70 hrs Self-study 50 hrs

Courses and performance record

Three of the parts 1 to 4 and part 5 have to be completed.

Part 1: "Spectroscopic methods in catalysis research"

Lecture or block course
Performance record for part 1: Written examination (60 minutes) or oral examination (approx. 30 min.) Requirement for participation in the performance record (in case of block course): Proof of regular participation

Part 2: "Kinetic methods of mechanistic explanation"

Lecture or block course
Performance record for part 2: Written examination (60 minutes) or oral examination (approx. 30 min.) Requirement for participation in the performance record (in case of block course): Proof of regular participation

Part 3: "High-throughput procedures and automated syntheses"

Lecture or block course
Performance record for part 3: Written examination (60 minutes) or oral examination (approx. 30 min.) Requirement for participation in the performance record (in case of block course): Proof of regular participation

Part 4: "Computer methods in catalysis research"

Lecture or block course
Performance record for part 4: Written examination (60 minutes) or oral examination (approx. 30 min.) Requirement for participation in the performance record (in case of block course): Proof of regular participation

5. Partial module: “Practical catalytic chemistry”

Industry field trips
Performance record for part 4: Proof of participation in two industry field trips

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Frequency of course **Semester basics** One of the parts 1- 4 in rotation every semester; an industry field trip (part 5) will be offered annually	**Duration** The module can be completed in three semesters.
Language English	**Maximum number of students** 30
Module coordinator Prof. Dr. Lutz Ackermann	

Georg-August-Universität, Göttingen
Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Module P.Che.1603 "Catalysis in the chemical context"

Learning objectives and skills	**C/WLH total**
After successfully completing the module, the doctoral candidate should have knowledge about the current research projects in the national and international field and should be aware of the status and the results of the doctoral theses in catalysis-related research areas of inorganic, organic, physical, macromolecular or technical chemistry. **Integrative teaching of key competencies:** The doctoral candidate can present his/her own scientific results intelligibly and discuss them critically in a circle of specialists.	6 C / 6 WLH *thereof* Share of key competencies: 1.5 C / 1.5 WLH Workload: 120 hrs thereof Attendance hours: 56 hrs Self-study 64 hrs

Courses and performance record

Seminar
Performance record: three presentations or reports (about 30 min. plus academic discussion) Requirements for participation in the performance record: prior to the third presentation or the third report, a proof of participation in 30 GDCh lectures or comparable events with guest lecturers (institute colloquia among others) has to be provided

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral studies "Catalysis for Sustainable Synthesis (CaSuS)"
Frequency of course **Semester basics** Every semester; courses are offered in all participating working groups	**Duration** The module can be completed in three semesters.
Language English	**Maximum number of students** 30
Module coordinator Prof. Dr. Lutz Ackermann	

Georg-August-Universität, Göttingen
Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Module P.Che.1604 "Presentation and discussion of research results"

Learning objectives and skills

After successfully completing the module, the doctoral candidate should have in-depth knowledge of the current problems in modern catalytic chemistry in the international field.

Integrative teaching of key competencies: The doctoral candidate should be in a position to present his/her own research work in the form of a specialist lecture or a poster to an international audience and support it professionally (criteria: Language and clarity of presentation, use of media, establishing a link between the technical content and an interdisciplinary problem, discussion). The doctoral candidate should also be in a position to contribute actively in organising a specialist symposium or a summer school.

C/WLH total

5 C / 8 WLH

thereof
Share of key competencies:
2.5 C / 5 WLH

Workload: 150 hrs
thereof
Attendance hours: 104 hrs
Self-study 46 hrs

Courses and performance record

Part 1: "Catalysis for Sustainable Synthesis (CaSuS) - seminar"

Seminar or summer school
Performance record for 1: academic lecture or poster presentation

Part 2: "Catalysis Symposium of Lower Saxony (NiKaS)"

Symposium
Performance record for 2: academic lecture or poster presentation

Part 3: "Conference"

Participation in a conference
Performance record for 2: academic lecture or poster presentation

Options Compulsory module in the doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral study programme "Catalysis for Sustainable Synthesis (CaSuS)"
Frequency of course **Semester basics** Parts 1 and 2: annually (alternate) Part 3: every semester	**Duration** The module can be completed in two semesters
Language English	**Maximum number of students** 30
Module coordinator Prof. Dr. Franc Meyer“	

Appendix 20: Specific subject regulations for the doctoral degree programme in "Chemistry"

A. Special responsibilities

An examination committee shall not be convened; the Dean's Office shall act in its place. Contrary to § 3 section 2 sentence 4, the tasks of the spokesperson of the examination committee shall be fulfilled as specified in this regulation by the Dean of Studies at the Faculty of Chemistry. He or she shall be represented by the Dean at the Faculty of Chemistry.

B. Special terms

1. Dissertation

Contrary to § 10 section 5, cumulative dissertations are not permitted in the doctoral degree programme in "Chemistry".

2. Duration of the doctoral process:

The research work should have been completed within three years following admission with submission of the dissertation. A six-month extension on this processing time can be granted respectively on up to four occasions, as ruled upon by the thesis committee on the basis of a written and reasoned application by the doctoral candidate. In addition to this, a further extension on this processing time can be granted in exceptional cases, as ruled upon by the Dean's Office on the basis of a written and reasoned application by the doctoral candidate. In both cases, the decision on an extension must be placed on file in the Dean's Office.

3. Examination board

Unlike in § 10 section 1, personal assistant for the dissertation must be selected from the group of authorised examiners at the Faculty of Chemistry at Georg-August-Universität Göttingen zu bestellen.

C. Doctoral studies

Over the course of the doctoral degree programme, proof of examination prerequisites must be completed in a scope of at least 30 credits (C) according to the following regulations:

1. Specialist competency (15 C) *)

a. Reflect on and present research

At least one of the following modules with a rating of 6 credits must be successfully completed:

P.Che.1001 "Forschung reflektieren und präsentieren (lokal)" (6 C)

P.Che.1002 "Forschung reflektieren und präsentieren (national)" (7 C)

P.Che.1002 "Forschung reflektieren und präsentieren (international)" (9 C)

b. Subject and methodological specialisation

The following modules with a rating of at least 6 C must be successfully completed: Modules (also specialist didactics) from the master degree programme in chemistry and modules by the mathematics and natural sciences faculties (apart from psychology) from the master and doctoral degree programmes are all eligible for consideration, provided they were not completed as part of the master degree programme. For instance, the following modules can be completes:

M.Che.1214 NMR für Strukturchemie und Strukturbiologie I 3 C / 3 WLH

M.Che.1215 NMR für Strukturchemie und Strukturbiologie II 3 C / 3 WLH

M.Che.1331 Kinetik und Dynamik 3 C / 3 WLH

M.Che.2403 Theoretisch-Chemischer Schwerpunkt 6 C / 5 WLH

M.Che.2503 Biomolekulare Chemie Praktikum 6 C / 6 WLH

M.Che.2603 Praktikum Katalysechemie 6 C / 8 WLH

M.Che.2703 Praktikum Makromolekulare Chemie 6 C / 8 WLH

The Dean of Studies respectively shall decide on the number of credits awarded based on the actual workload insofar as the courses on offer are not structured as modules.

*) Specialist competency also means specialist didactics competency for doctoral programmes in didactic areas of chemistry.

2. Scientific teaching (9 C)

The following module with a rating of 9 C must be successfully completed:

P.Che.1004 Wissenschaftliche Lehre 9 C

3. Key competencies (6 C)

The following modules with a rating of at least 6 C must be successfully completed: Doctoral candidates can attend in particular modules listed in the university module catalogue of key competencies, the courses offered by Teaching in Higher Education at the University of Göttingen and designated courses by the Faculty of Chemistry. The Dean of Studies respectively shall decide

on the number of credits awarded based on the actual workload insofar as the courses on offer are not structured as modules.

4. The Dean's Office may permit, following a statement by the thesis committee, that other courses may be completed in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

D. Module catalogue

Georg-August-Universität, Göttingen **Module P.Che.1001: Forschung reflektieren und präsentieren (lokal)**	**6 C** **7 WLH**

Learning objectives/competencies: The doctoral students ... - shall critically appraise their research project and the literature relevant to their research area; - shall when necessary select relevant examples from literature and shall put forward said examples in the framework of brief talks and poster presentations (German, English); - can suitably assess and interpret results and deduce conclusions for use in future questions; - consider the rules of good scientific practice; - learn to critically review scientific publications; - independently develop issues based on current literature, assess their relevance and pursue their clarification systematically; - enlarge upon theoretical knowledge and methodology they need for their dissertation; - learn how to independently acquire and apply new knowledge and skills; - distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research; - communicate complex scientific issues in a style that suits the recipients; - select reasoned results of own scientific work for presentation and discuss these results critically; - assign own results of the doctoral project a suitable place within current discussions in the research area and reflect on their relevance; - have a firm grasp of project and report-based time management; - be familiar with fundamental elements of scientific presentation and/or a poster presentation; - acquire the skills to present and discuss own research results before a knowledgeable audience within the framework of a specialist lecture and poster presentation in a seminar course or at a local conference; - gain in-depth knowledge in subject-specific areas of knowledge and current research directions through participation in scientific colloquia/conferences; - follow up scientific talks at specialist conferences; - critically appraise the theoretical and methodical approaches taken in other research projects and thereby reflect on the own research project; - enlarge on skills to engage in scientific appraisal and discourse within the framework of academic events of research-based relevance in a research area.	Workload Contact hours 98 hours Self-study 82 hours

Course: Working group seminar course and meetings with the thesis committee	6 WLH
Course: Colloquia at the Faculty of Chemistry	1 WLH
Examination prerequisites: Regular attendance at the working group seminar course in which the dissertation will be prepared; hold 2 talks (each approx. 25 min.+discussion) in this working group seminar course; proof of at least 3 "annual meetings" with the thesis committee; proof of attendance for at least 12 specialist talks (colloquia); proof of own scientific presentations; hold 1 talk in an inter-working group seminar course or at least one local conference (e.g. the Göttingen Chemistry Forum) and present 2 posters.	
Performance record prerequisites: Portfolio on experience in the area of scientific communication (max. 2 pages), ungraded	

Performance requirements: Reflection on the presentation of results from the candidate's doctoral project as the doctoral studies progress (possibly presentation of outstanding questions, planning of further procedure) as well as on the specialist talks attended.	

Qualifications for entry: None	Recommended prior knowledge: None
Language: German, English	Module manager: Dean of Studies
Frequency of course: Each semester	Duration: 6 semesters
Reassessment: Three times	Recommended subject semester: from semester 1
Maximum number of students: Unlimited	

Georg-August-Universität Göttingen **Module P.Che.1002: Forschung reflektieren und präsentieren (national)**	**7 C** **7 WLH**

Learning objectives/competencies: The doctoral students ... - shall critically appraise their research project and the literature relevant to their research area; - shall when necessary select relevant examples from literature and shall put forward said examples in the framework of brief talks and poster presentations (German, English); - can suitably assess and interpret results and deduce conclusions for use in future questions; - consider the rules of good scientific practice; - learn to critically review scientific publications; - independently develop issues based on current literature, assess their relevance and pursue their clarification systematically; - enlarge upon theoretical knowledge and methodology they need for their dissertation; - learn how to independently acquire and apply new knowledge and skills; - distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research; - communicate complex scientific issues in a style that suits the recipients; - select reasoned results of own scientific work for presentation and discuss these results critically; - assign own results of the doctoral project a suitable place within current discussions in the research area and reflect on their relevance; - have a firm grasp of project and report-based time management; - be familiar with fundamental elements of scientific presentation and/or a poster presentation; - acquire the skills to present and discuss own research results before a knowledgeable audience within the framework of a specialist lecture and poster presentation in a seminar course or at a national conference; - gain in-depth knowledge in subject-specific areas of knowledge and current research directions through participation in scientific colloquia/conferences; - follow up scientific talks at specialist conferences; - critically appraise the theoretical and methodical approaches taken in other research projects and thereby reflect on the own research project; - enlarge on skills to engage in scientific appraisal and discourse within the framework of academic events of research-based relevance in a research area.	Workload Contact hours 98 hours Self-study 112 hours

Course: Working group seminar course and meetings with the thesis committee	6 WLH
Course: Colloquia at the Faculty of Chemistry	1 WLH
Examination prerequisites: Regular attendance at the working group seminar course in which the dissertation will be prepared; hold 2 talks (each approx. 25 min.+discussion) in this working group seminar course; proof of at least 3 "annual meetings" with the thesis committee; proof of attendance for at least 12 specialist talks (colloquia);	

proof of own scientific presentations; hold 1 talk in an inter-working group seminar course or at least one local conference (e.g. the Göttingen Chemistry Forum) and present 1 poster and hold 1 talk at least one national conference.	
Performance record prerequisites: Portfolio on experience in the area of scientific communication (max. 2 pages), ungraded Performance requirements: Reflection on the presentation of results from the candidate's doctoral project as the doctoral studies progress (possibly presentation of outstanding questions, planning of further procedure) as well as on the specialist talks attended.	

Qualifications for entry: None	Recommended prior knowledge: None
Language: German, English	Module manager: Dean of Studies
Frequency of course: Each semester	Duration: 6 semesters
Reassessment: Three times	Recommended subject semester: from semester 1
Maximum number of students: Unlimited	

Georg-August-Universität Göttingen **Module P.Che.1003: Forschung reflektieren und präsentieren (international)**	**9 C** **7 WLH**

Learning objectives/competencies: The doctoral students ... - shall critically appraise their research project and the literature relevant to their research area; - shall when necessary select relevant examples from literature and shall put forward said examples in the framework of brief talks and poster presentations (German, English); - can suitably assess and interpret results and deduce conclusions for use in future questions; - consider the rules of good scientific practice; - learn to critically review scientific publications; - independently develop issues based on current literature, assess their relevance and pursue their clarification systematically; - enlarge upon theoretical knowledge and methodology they need for their dissertation; - learn how to independently acquire and apply new knowledge and skills; - distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research; - communicate complex scientific issues in a style that suits the recipients; - select reasoned results of own scientific work for presentation and discuss these results critically; - assign own results of the doctoral project a suitable place within current discussions in the research area and reflect on their relevance; - have a firm grasp of project and report-based time management; - be familiar with fundamental elements of scientific presentation and/or a poster presentation; - acquire the skills to present and discuss own research results before a knowledgeable audience within the framework of a specialist lecture and poster presentation in a seminar course or at a national conference and an international conference; - gain in-depth knowledge in subject-specific areas of knowledge and current research directions through participation in scientific colloquia/conferences; - follow up scientific talks at specialist conferences; - critically appraise the theoretical and methodical approaches taken in other research projects and thereby reflect on the own research project; - enlarge on skills to engage in scientific appraisal and discourse within the framework of academic events of research-based relevance in a research area; - learn as necessary how to acquire third-party funding to finance attendance of an international specialist conference.	Workload Contact hours 98 hours Self-study 172 hours

Course: Working group seminar course and meetings with the thesis committee	6 WLH
Course: Colloquia at the Faculty of Chemistry	1 WLH
Examination prerequisites: Regular attendance at the working group seminar course in which the	

dissertation will be prepared; hold 2 talks (each approx. 25 min.+discussion) in this working group seminar course; proof of at least 3 "annual meetings" with the thesis committee; proof of attendance for at least 12 specialist talks (colloquia); proof of own scientific presentations; hold 1 talk in an inter-working group seminar course or at least one local conference (e.g. the Göttingen Chemistry Forum) and present 1 poster, hold 1 at an at least national conference and 1 talk at an international conference.	
Performance record prerequisites: Portfolio on experience in the area of scientific communication (max. 2 pages), ungraded Performance requirements: Reflection on the presentation of results from the candidate's doctoral project as the doctoral studies progress (possibly presentation of outstanding questions, planning of further procedure) as well as on the specialist talks attended.	

Qualifications for entry: None	Recommended prior knowledge: None
Language: German, English	Module manager: Dean of Studies
Frequency of course: Each semester	Duration: 6 semesters
Reassessment: Three times	Recommended subject semester: from semester 1
Maximum number of students: Unlimited	

Georg-August-Universität Göttingen Module P.Che.1004: Wissenschaftliche Lehre	9 C 6 WLH

Learning objectives/competencies: The doctoral students • prepare the contents of courses for advanced students under the instruction and supervision of PostDocs at the faculty, and then support students during seminar courses, exercises or internships • prepare objectives/learning objectives for the teaching units; instruct student assistants working in the same module and accept upstream organisational tasks within the framework of the module • therefore acquire skills in the planning and organisation of courses • are familiar with didactic support methods in scientific teaching • acquire skills required to reflect critically on one's own teaching • enlarge on their scientific horizon.	Workload Contact hours 84 hours Self-study 186 hours

Performance record: final report (max. 2 pages) to reflect on the understanding of teaching and the sequence of a course acquired during the doctoral process: meetings with assistants Examination prerequisites: Contribution to the completion of a various types of courses as coordinated with the responsible teachers in order to acquire the aforementioned competencies; active participation in the corresponding meetings with assistants.	

Qualifications for entry: None	Recommended prior knowledge: Teaching experience, e.g. as student assistant during the bachelor and/or master degree programme
Language: German, English	Module manager: Dean of Studies
Frequency of course: Each semester	Duration:
Reassessment: Twice	Recommended subject semester:
Maximum number of students: unlimited"	

Appendix 21: Specific subject regulations for the doctoral degree programme in "Physics"

A. Special responsibilities

An examination committee shall not be convened; the Dean's Office shall act in its place.

B. Special terms

1. Duration of the doctoral process/part-time studies

a. The research work should have been completed within three years following admission, including submission of the dissertation. The thesis committee is entitled, based on a reasoned, written application by the doctoral candidate, to agree an additional processing time with the doctoral candidate; the office of the Dean of Studies must be consulted in respect to agreements of processing time lasting over four years. The decision on an extension must be placed on file in the office of the Dean of Studies.

b. Parts or all of the doctoral degree programme in "Physics" can be completed as part-time studies. In this respect students must prove by submission of suitable documents that on an average of the semester, they do not have more than 20 hours of time per week to engage in the research and their other commitments as specified in the supervision agreement. The deadline as defined under a shall be extended by one semester for each two semesters of part-time studies, respectively; this shall apply accordingly in the event that part-time studies lasted one semester only. Documents as required under sentence 1 shall be deemed only such as are issued by third parties; this requirement of validation by documents as specified under sentence 1 may be waived insofar as it shall be considered unduly severe. The Dean's Office shall decide in this respect.

2. Dissertation

§ 10 section 3 sentence 1 notwithstanding, it is ruled that the dissertation shall be written in the English language. Alternatively, it is permitted to write the dissertation in the German language, provided the students can demonstrate sufficient German language skills (of level DSH-2 or higher).

3. Form of the oral examination

§ 16 section 1 sentence 1 notwithstanding, it is ruled that the oral defense shall be conducted in the English language. Alternatively, it is permitted to conduct the oral defense in the German language, provided the students can demonstrate sufficient German language skills (of level DSH-2 or higher).

C. Performance record

Over the course of the doctoral studies, Performance record must be provided through the successful completion of the following modules in a scope of at least 28 credits:

P.Phy.01	Thesis Committee Meeting	(4 C)
P.Phy.02	Scientific presentation and communication	(4 C)
P.Phy.03	Scientific Writing	(4 C)
P.Phy.04	Advanced scientific qualification in theory and practice	(4 C)
P.Phy.05	Additional scientific qualification in theory and practice	(4 C)
P.Phy.06	Tutorial teaching (4 C)	
P.Phy.07	Key competences (4 C)	

The thesis committee may approve that other courses may be attended in place of the modules listed above, provided they are essentially equivalent with the aforementioned modules in terms of the competencies that shall be acquired.

D. Module Handbook

<table>
<tr><td colspan="3">Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.01: Thesis Committee Meeting</td></tr>
<tr><td colspan="2">Learning objectives
- Scientific assistance in a research area
- Critical appraisal of scientific publications
- Profound knowledge in subject-specific fields of knowledge and current research focuses
- Knowledge of the rules of good scientific practice
Competencies
- Fundamental ability to engage in scientific appraisal and discourse within the framework of academic events of research-based relevance in a research area
- The ability to formulate problems within physics and to describe corresponding solution strategies
- The ability to document the results of research into issues within physics
- Presentation of research results to a specialist audience</td><td>Scope of the module

4 Credits/
2 WLH

Workload in hours: 120
Attendance in hours: 60
Self study in hours: 60</td></tr>
<tr><td colspan="2">Course: Institute/working group seminar course
Course: Annual meetings with the thesis committee
Performance record: Portfolio on experience in the area of scientific communication (no more than 2 pages, respectively), ungraded
Preliminary requirements:
Regular participation in institute/working group seminar courses; proof of at least one meeting per year with the thesis committee
Performance requirements:
Progress in the doctoral project, presentation of outstanding questions, planning of the next stages until completion of the doctoral studies</td><td>2 WLH</td></tr>
<tr><td>Options
Compulsory module</td><td colspan="2">Qualifications for entry
None</td></tr>
<tr><td>Reassessment
Twice</td><td colspan="2">Applicability
Doctoral degree programme in "Physics"</td></tr>
<tr><td>Frequency of course
Semester basics
Each semester</td><td colspan="2">Duration
The module can be completed in two semesters</td></tr>
<tr><td>Language
German or English</td><td colspan="2">Maximum number of students</td></tr>
<tr><td colspan="3">Module coordinator
Dean/Dean of Studies in the Faculty of Physics</td></tr>
</table>

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.02: Scientific presentation and communication

Learning objectives and skills

The doctoral students

1. systematically summarise their research findings and present the same in front of an expert audience;
2. are equipped to defend their own research project in disciplinary and inter-disciplinary discourses;
3. consolidate their knowledge to defend their own position in controversial discussions and to counter criticism constructively;
4. develop contacts with the international scientific community;
5. become familiar with new research and topical fields.

Scope of the module

4 Credits

Workload in hours: 120
Attendance in hours: 42
Private study in h: 78

Courses and examinations

Preparation and presentation of scientific contributions for at least one national or international conference.
Performance record: Talk or poster presentation, ungraded

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester.
Language German or English	**Maximum number of students**
Module coordinator Dean/Dean of Studies in the Faculty of Physics	

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.03: Scientific Writing

Learning objectives and skills

The doctoral students can present and discuss the current status and results of their doctoral thesis. Under instruction and supervision, they are able to prepare and write a scientific manuscript on their own research topic. They acquire competencies in critical reflection on their own scientific discussion and expand their scientific horizon.

Scope of the module

4 Credits/
2 WLH

Workload in hours: 120
Attendance in hours: 60
Self study in hours: 60

Courses and examinations

A scientific publication consisting mainly of the candidate's own contributions must be prepared under instruction and supervision, and then submitted to an international academic journal.
Performance record: Publication submitted for publishing and consisting mainly of the candidate's own contributions on current research results.

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester.
Language German or English	**Maximum number of students**
Module coordinator Dean/Dean of Studies in the Faculty of Physics	

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.04: Advanced scientific qualification in theory and practice

Learning objectives and skills
The doctoral students
- enlarge upon theoretical knowledge and methodology they need for their dissertation;
- learn how to independently acquire and apply new knowledge and skills in a practical environment;
- distinguish research topics from one another and derive relevant research questions that can be empirically verified based on the state of the research;
- develop on the basis of the knowledge acquired suitable experiments and analysis designs in order to respond to hypotheses.

Scope of the module

4 Credits/
2 WLH

Workload in hours: 120
Attendance in hours: 60
Private study in h: 60

Courses and examinations

Advanced courses in the research area of the doctoral studies; also suitable courses from related research areas in the master degree programme or external, specialist methodical or advanced courses as defined by the thesis committee, e.g. as part of an inter-university doctoral degree network.
Performance record: Work report, no more than 2 pages (ungraded)

WLH individual

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in one semester
Language English	**Maximum number of students**

Module coordinator
Dean/Dean of Studies in the Faculty of Physics

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.05: Additional scientific qualification in theory and practice

Learning objectives
- Expansion of knowledge of the natural sciences

Competencies
- Command of an enlarged methodical repertoire
- Ability to classify results in own research area within a broader context

Scope of the module

4 C / 2 WLH

Workload in hours: 120
Attendance in hours: 30
Self study in hours: 90

Courses and examinations

Advanced course in research areas of natural sciences that do not belong to the closer research area of the dissertation. A member of the thesis committee will decide whether a course belongs to the closer research area of the dissertation.
Performance record: Work report, no more than 2 pages (ungraded)

WLH individual
2 WLH

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of course Each semester	**Duration** The module can be completed in one semester
Language German or English	**Maximum number of students** None

Module coordinator
Dean/Dean of Studies in the Faculty of Physics

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.06: Tutorial Teaching

Learning objectives and skills	**Scope of the module**
The PhD students 1. prepare courses for advanced students under the instruction and supervision of PostDocs at the faculty, and then support students during seminar courses, exercises, internships or in the completion of the bachelor or master thesis 2. shall design targets, learning targets and the content of teaching units; 3. shall hence acquire skills in the planning and organisation of courses 4. shall acquire knowledge about the didactic tools used within scientific teaching 5. shall acquire skills required to reflect critically on one's own teaching 6. shall enlarge on their scientific horizon.	4 Credits/ 8 WLH Workload in hours: 180 Attendance in hours: 90 Self study in hours: 30
Courses and examinations	
Completion of an independent, two-hour exercise lasting an entire semester, OR	2 WLH / 2 C
Completion of an independent, two-hour exercise lasting an entire semester and assistance during the exercise	4 WLH / 4 C
An additional 4, i.e. 6 WLH/6C by completion of:	
- additional exercises and/or	(2 WLH / 2 C each)
- support for one or several internship experiments on at least 5 dates	(2 WLH / 2 C each)
- support for no more than (in total) 2 bachelor or master theses	
Performance record: Preparation of teaching material or reflection on the supervision and teaching relationship and on the sequence of the internship or teaching unit in a report form (no more than 2 pages).	(1 C, max. 2 C each)

Options Compulsory module	**Qualifications for entry** None
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of course **Semester basics** Each semester	**Duration** The module can be completed in two semesters
Language German or English	**Maximum number of students**
Module coordinator Dean/Dean of Studies in the Faculty of Physics	

Georg-August-Universität Göttingen
Doctoral degree programme in "Physics"
P.Phy.07: Key competences

Learning objectives and skills

The PhD students

1. acquire interdisciplinary methods and key competencies that are expedient to their doctoral studies and their professional start, for instance project and time management, advanced scientific writing, presentation techniques, Teaching in Higher Education, leadership skills.
2. on their own initiative seek further education in the fields of general, personal, social and professional skills, for instance by completing company internships or traineeships.

Scope of the module

4 Credits/
4-8 WLH

Workload in hours: 120
Attendance in hours: 40-80
Self study in hours: 40-80

Partial modules: Courses and examinations

The doctoral candidates consult with the thesis committee to select courses that enlarge on their key competencies, hence contributing to an improvement in their doctoral studies project and their vocational qualification. Specialised and also interdisciplinary methodical courses from those offered by the university and also other institutions can be selected.	flexible
Performance record: Presentation (ungraded) or work report (max. 2 pages; ungraded) or practical performance record for the acquisition of key competencies	

WLH individual

Options Compulsory module	**Qualifications for entry** --
Reassessment Twice	**Applicability** Doctoral degree programme in "Physics"
Frequency of offer, semester repetition Each semester	**Duration** The module can be completed in one semester
Language German, English	**Maximum number of students**

Module coordinator
Dean/Dean of Studies in the Faculty of Physics