

Please note that this document is a non-binding convenience translation. Only the German version of the document entitled "Promotionsordnung der Universität Heidelberg für die Naturwissenschaftlich-Mathematische Gesamtfakultät" [published in the Rector's Bulletin (*Mitteilungsblatt des Rektors*), 25 September 2006, page 767 et seq., corrected in the Rector's Bulletin, 18 December 2006, page 1199, last amended on 10 April 2014 in the Rector's Bulletin, 30 April 2014, p. 281)] has legal validity.

Doctoral Regulations of Heidelberg University for the Combined Faculties of Natural Sciences and Mathematics

of 22 September 2006

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Section 1 Types of doctoral degree, purpose of the doctorate, responsible faculties

- (1) The Combined Faculties of Natural Sciences and Mathematics of Heidelberg University award the academic degree of Doctor of Natural Sciences (Dr. rer. nat.) on the basis of the candidate's doctoral work; candidates in geography who submit a doctoral dissertation within the field of human geography and who do not have an academic degree in the natural sciences will be awarded the academic degree of Doctor of Philosophy (Dr. phil.).
- (2) The doctorate serves to demonstrate the candidate's ability to undertake independent academic research.
- (3) The Combined Faculties of Natural Sciences and Mathematics are committed to the recommended guiding principles on the promotion of junior researchers issued by the Senate of Heidelberg University and will implement those recommendations appropriately.

- (4) The individual faculties of the Combined Faculties of Natural Sciences and Mathematics will be in charge of administering doctoral degree procedures. Notwithstanding the foregoing, doctorates in computer science will be administered by the Combined Faculties of Natural Sciences and Mathematics. Accordingly, for computer science degrees the responsibilities of the faculties referred to hereinafter will be assumed by the Combined Faculties unless otherwise specified.
- (5) Acting on a proposal of the relevant faculty, the Combined Faculties of Natural Sciences and Mathematics may award the degree of Doctor honoris causa in recognition of outstanding academic achievements. Section 15 of these regulations applies in this regard.

Section 2 Components of the doctorate

The doctorate consists of a doctoral dissertation and an oral defence.

Section 3 Doctoral committees

- (1) Each faculty board within the Combined Faculties of Natural Sciences and Mathematics elects a doctoral committee. The doctoral committee is responsible for the tasks arising from these regulations and ensures that the doctoral regulations are adhered to.
- (2) The faculty boards of the Faculty of Mathematics and Computer Science and the Faculty of Physics and Astronomy elect the voting members of the doctoral committee for computer science. The deans of both faculties make nominations jointly.
- (3) The doctoral committee consists of the dean, acting as chair, a vice dean or dean of studies, and at least three professors, university lecturers or "Privatdozenten" (hereinafter referred to as "associate professors") from different disciplines. The doctoral committee is elected for a two-year term. Re-election of the individual members is permitted. The term of office begins with the date of election.
- (4) Notwithstanding subsection 3, the doctoral committee for computer science consists of the deans of the Faculty of Mathematics and Computer Science and the Faculty of Physics and Astronomy, and at least four professors, university lecturers or associate professors who are involved in teaching and research in computer science. The deans of both faculties take the chair alternately, each for the duration of one term of the doctoral committee.
- (5) Routine tasks of the doctoral committee are effected by the chair. The committee has the revocable right to entrust part of its tasks to the chair.

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- (6) Members of the doctoral committee have the right to attend the oral defence of doctoral dissertations.
- (7) Applicants are informed of the decisions of the doctoral committee in writing along with a notice on how to appeal.

Section 4 Admission requirements

- (1) Admission to a doctoral programme is conditional upon proof that the candidate has completed an academic course of studies and earned one of the following degrees: Diplom, Magister, master's degree, Staatsexamen or international equivalents. The doctoral committee alone has the authority to recognise the equivalence of international qualifications.
- (2) The Combined Faculties may set a minimum grade in the qualifying university degree as a condition for admission within an individual subject, if the faculty concerned proposes this. These minimum grades are listed in appendix 2. Admission of individual applicants whose grades fall below the minimum requires special reasons and is subject to the doctoral committee's approval. Where no comparative marking scale is available for international degrees, the doctoral committee will verify the equivalence of the applicant's grades pursuant to subsection 1.
- (3) Candidates who took their final examination in a subject different from their chosen dissertation subject must prove to the doctoral committee that they possess sufficient theoretical knowledge and practical skill in this subject; as a rule, meeting, as a rule, the standard of the customary final examination (Diplom, Magister, master's degree, Staatsexamen). The same applies to practical skills of candidates who took the Staatsexamen and who did not complete their degree dissertation in their chosen doctoral subject. Proof of these skills may take the form of previously completed courses or examinations, if these are relevant to the focus of the faculty concerned and to the intended subject of the dissertation. Alternatively, the student must successfully complete a preparation course as specified under subsection 5, and additional academic coursework. Admission to the subject of astronomy requires a first degree in either mathematics or physics, or proof of equivalent specialised knowledge and skill in one of these subjects.
- (4) Particularly qualified bachelor's degree holders and candidates who do not hold a degree equivalent to a Diplom, Magister, master's degree or Staatsexamen qualifying them for admission to a doctorate, and provided that the doctoral committee deems the candidate's performance in his or her previous course above average, may be given the opportunity to qualify for a doctorate by completing a preparatory course pursuant to subsection 5. If the faculty concerned offers programmes for the candidate's chosen doctoral subject, her or she may alternatively be asked to complete the master's programme to qualify for admission.

- (5) The doctoral committee decides whether or not an individual candidate has sufficient relevant knowledge to be admitted to the preparatory course. The doctoral committee decides on the preparatory work to be undertaken, what level of achievement is required, and how much time should be allotted. Candidates may be asked to attend taught courses and complete the corresponding coursework or examinations, or to write a research paper, or a combination of both. Any research project must meet the same standard as is expected for the Diplom, master's degree or Staatsexamen. The doctoral committee appoints the evaluators for the research paper, and the evaluators for a final oral examination, which will last about one hour. In the oral examination, candidates must prove that they possess a level of knowledge within their doctoral subject that is equivalent to that expected for a Diplom, master's degree or Staatsexamen. Both the research paper and the oral examination are graded simply as "pass" or "fail". The oral examination may be re-taken once.
- (6) Candidates with a degree from a university of applied sciences (Fachhochschule) may be admitted to a doctorate if they
- achieved an above-average final result and
 - complete an aptitude assessment procedure successfully (Eignungsfeststellungsverfahren).

The responsible doctoral committee oversees the aptitude assessment procedure, and the results should provide evidence that the student has appropriate ability and is qualified to undertake research in the intended area. The doctoral committee determines the required level of achievement. The aptitude assessment procedure should normally be completed after three semesters.

- (7) Candidates who have already received a doctoral degree in one of the subjects of the Combined Faculties of Natural Sciences and Mathematics require the combined faculties' consent to be admitted to another doctorate in a different subject within the Combined Faculties. Applicants who have already received the degree of "Dr. sc. hum" (Doctor of human sciences) may only be admitted if they can provide proof of a further academic degree that allows for the degree of "Dr. rer. nat" (Doctor of science) to be awarded.
- (8) The admission procedure must be completed within six months. If a candidate is admitted to a preparatory course of study or is subject to an aptitude assessment procedure under the conditions set forth under subsections 3 to 6, the time required shall not count against this six month time period.

Section 5 Acceptance of doctoral candidates

- (1) Those who fulfil the conditions of admission shall, before beginning their dissertation, apply to the relevant doctoral committee for acceptance as a doctoral candidate. The application must be accompanied by:
- Proof of award of a degree (section 4 subsection 1) or of the successful completion of a preparatory course or aptitude assessment procedure in accordance

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with section 4 subsections 3-6. The doctoral committee may allow exemptions for duly substantiated cases;

- b) A statement as to whether the applicant has also applied to be accepted as a doctoral candidate at another institution;
 - c) Details of the provisional dissertation topic
 - d) Specification of workstation
 - e) A statement by applicants who intend to submit their dissertation in geography as to whether they are seeking the degree of Dr. rer.nat. or Dr. phil.;
 - f) A statement from a professor, university lecturer or associate professor that they will be responsible for supervising the candidate. The supervisor must belong to the relevant faculty. The supervisor has prime responsibility for providing academic support, an appropriate research environment, and scientific guidance, ensuring that the research be carried out in a timely manner. The doctoral committee may appoint a second supervisor, especially for dissertations with inter-disciplinary themes. Leaders of independent research groups may also be appointed as supervisors if they are authorized examiners in accordance with the regulations on the conferral of examination authorisations on leaders of independent research groups within the Combined Faculties of Natural Sciences and Mathematics.
- (2) Decisions concerning acceptance of doctoral candidates are made by the chair of the doctoral committee. Rejections require the agreement of the doctoral committee. Applicants will be notified of the decision in writing. The reasons for rejection must be given along with instructions for appeal.
- (3) In cases where subsection 1 letter e applies, the doctoral committee decides with reference to the provisional research topic whether or not the applicant's preference for the degree of Dr. rer. nat or Dr. phil. is admissible.
- (4) Individuals who do doctoral research and have been admitted as doctoral students will be enrolled as doctoral students for the maximum enrolment period set forth under section 5 subsection 5, unless they are already members of the university by virtue of an employment contract.
- (5) As a rule, the doctoral project should be completed within three years. The maximum time allowed is five years. Further extensions may be granted only in justified cases, such as breaks taken for pregnancy and childcare. Admission expires if the main supervisor withdraws his or her support for justified reasons. Such withdrawal requires the approval of the doctoral committee.
- (6) The doctoral committee may agree to a change of supervisor(s) upon substantiated request. If the supervisor becomes unavailable, for example through long-term illness, etc., and the doctoral project is already well advanced, the doctoral committee may if necessary appoint a new supervisor in consultation with the doctoral candidate.

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- (7) Doctoral research is to be carried out either at an institute within the faculty, or at a research institution deemed to be equivalent by the professors, university lecturers and associate professors who make up the membership of the faculty council. The doctoral committee must approve any exceptions to this rule.

Section 6 Dissertation schedule and structured doctoral programme

- (1) Upon admitting a doctoral student, the faculty concerned undertakes to examine a final scientific dissertation with the theme already provided, and to support the doctoral candidate in his or her dissertation work.
- (2) The candidate and his or her supervisor conclude an agreement stating the dissertation topic, the duration of the doctorate, and most notably a dissertation schedule pursuant to section 5 subsection 5. The progress of the dissertation project shall be evaluated regularly.
- (3) If the University offers a structured doctoral programme for the subject concerned, doctoral candidates are encouraged to take part in order to further their skills and knowledge base. Each faculty regulates the extent of mandatory participation for its candidates, taking into account obligations arising for candidates who are involved in interdisciplinary doctoral programmes.
- (4) If a candidate fails to fulfil the requirements specified under his or her subject's doctoral regulations (dissertation schedules, taught programme; see appendix), admission to doctoral programme may be revoked.

Section 7 Doctoral dissertation

- (1) The dissertation must be of an adequate scientific standard, be a product of the candidate's own research, and contribute to the advancement of science.
- (2) Findings of the dissertation may, with the agreement of the candidate's supervisor, be published in full or in part before admission to the examination procedure. This includes the possibility to opt for a dissertation by publication. Each faculty specifies more detailed provisions for its own part (see appendix).
- (3) As a rule, the dissertation is to be written in German or English. Summaries of the most important findings must be placed before the main text in both German and English. In exceptional cases, the Doctoral committee will check whether the use of a third language may be admitted.

Section 8 Admission to examination procedure

- (1) After completing their dissertation, doctoral candidates admitted in accordance with section 5 must apply for admission to the final examination with the relevant doctoral committee. The chair decides on admission. Rejections require the agreement of the doctoral committee.

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| (2) | If a candidate who was not previously admitted applies for the final examination, the doctoral committee decides whether he or she will be admitted or rejected. Sections 4 and 5 apply accordingly. | |
| (3) | The application for admission to the examination procedure is to be accompanied by: | |
| a) | Ten printed copies of dissertations within the Faculty of Mathematics and Computer Science and for astronomy; five printed copies in all other cases | |
| b) | An affidavit stating that the applicant is the sole author of the submitted dissertation and that he or she has not made use of any sources or resources apart from those indicated | |
| c) | A statement declaring whether or not the applicant has applied for permission to enter the examination procedure at another institution, or has submitted a current or modified version of his or her dissertation as the exam paper in another examination or as a dissertation to another faculty | |
| d) | A tabular curriculum vitae listing notably the candidate's courses of undergraduate and postgraduate study and his or her nationality | |
| e) | Certificates of state or academic qualifications (cf. section 4 subsection 1) and, where applicable, certificates in accordance with section 4 subsections 3-6 | |
| f) | Where applicable, a list of courses as specified under section 6 subsection 3 attended or taught by the candidate | |
| (4) | As a rule, admission must be denied if the documents are incomplete. It may be denied if the candidate failed more than one previous attempt to obtain a doctorate. | |
| (5) | The candidate may withdraw his or her application for admission to the final examination, so long as neither of the written evaluations has been submitted to the examination committee or the doctoral committee. | |

Section 9 Dissertation evaluation

- (1) After granting admission to the examination procedure, the chair of the doctoral committee without undue delay appoints two evaluators, one of whom shall normally be the main supervisor in accordance with section 5 subsection 1 letter f). For interdisciplinary dissertations, the evaluators should represent the main subjects covered by the dissertation.
- (2) As a rule, the evaluators must be professors, university lecturers or associate professors and should normally belong to the relevant faculty within the Combined Faculty of Natural Sciences and Mathematics at Heidelberg University; the doctoral committee may allow professors, university lecturers or associate

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professors of other faculties or universities to act as evaluators. In the case of external written evaluations, the evaluators should hold a position comparable to that of a German professor, university lecturer or associate professor. The same applies if leaders of independent research teams are appointed as evaluators.

- (3) Doctoral candidates may propose who should be appointed as their evaluators and to the examination committee as set forth under section 10. The chair must hear the doctoral candidate on these proposals, but they do not establish a legal entitlement for the candidate.
- (4) Written evaluations of the doctoral thesis are to be made independently by the evaluators and should be presented within one month of the appointment of the evaluators. The evaluators propose either acceptance or rejection of the dissertation and, if the dissertation is to be accepted, award a mark. With respect to marking, section 11 subsection 2 applies accordingly.
- (5) If the evaluators do not agree as to acceptance or a rejection, or if there is a discrepancy of more than one full point in the mark awarded, the case will be referred to the doctoral committee for decision. If two evaluators propose that the dissertation be rejected, the doctoral project is terminated. The doctoral committee will issue a written decision where this is the case.
- (6) The dissertation and evaluations must be open to inspection by the members of the examination committee (see section 10) and the professors, university lecturers or associate professors of the faculty for a minimum of two and a maximum of six weeks. Alternatively, they can be made available by circulation to all persons specified under clause 1. The way in which the documents are circulated may differ from faculty to faculty, but it must be the same for all candidates within any given faculty. Any objections must be communicated to the doctoral committee in writing during the inspection or circulation period. In such cases the doctoral committee decides how to proceed further. During the inspection or circulation period the professors, university lecturers or associate professors of the faculty have the right to apply to the doctoral committee for the commission of another evaluation. The application must be substantiated in writing; the power of decision rests with the doctoral committee. If no objections are raised, the dissertation is accepted.

Section 10 Examination committee and oral defence

- (1) If the dissertation is accepted in accordance with section 9 subsection 6 the chair of the doctoral committee appoints the four members of the examination committee and selects the chair. The committee should be composed of the evaluators and two other members who are professors, university lecturers or associate professors; Evaluators not belonging to the faculty may optionally be appointed to the examination commission. At least two professors, university lecturers or associate professors, should belong to the faculty in which the doctorate is taken. A professor, university lecturer or associate professor of the faculty chairs the committee. The members of the committee represent at least

three subject fields pursuant to the appendix to section 10 that stand in a meaningful relation to the subject in which the doctorate is taken and/or the dissertation. The doctoral committee may at the candidate's request permit the representation of subject fields other than those permitted in accordance with the appendix to section 10. The doctoral committee may decide that a discipline that would normally be outside the scope of the faculty, but which is relevant to the thesis, must be represented at the oral defence.

- (2) For doctorates in mathematics that are not of an interdisciplinary nature and where the candidate therefore requests a composition of the examination committee as specified under subsection 1, provisions diverging from subsection 1 subsections 1-4 apply: The examination committee consists of at least three members. The fields of pure and applied mathematics must both be represented. Upon the candidate's request, an area that would normally be outside the scope of the Faculty of Mathematics and Computer Science but which is relevant to mathematics may be represented at the oral defence. In this case a representative of the extra subject is included as an additional member of the examination commission. Subjects deemed as relevant are listed in the appendix to section 10 under subject-specific regulations. In all other cases, the doctoral committee decides.
- (3) The chair of the doctoral committee sets the date of the oral defence in consultation with the members of the examination commission and the candidate. The date should normally be no later than three months after admission to the examination procedure.
- (4) The defence is a scientific oral exam, in which the examination committee and the candidate discuss themes that are either directly, or methodologically, connected with the dissertation. In addition, the defence may also include other themes of the subject in which the doctorate is taken, as well as the subjects represented by the members of the committee.
- (5) The chair of the examination committee leads the oral defence. It should last at least one hour and an hour and a half at most. The candidate may choose to hold the oral defence in German or in English. A written record of the oral defence must be prepared, and signed by the members of the examination committee.
- (6) Doctoral candidates belonging to the faculty are admitted to hear the oral defence, so far as space limitations allow. The public must be excluded upon the candidate's request or if necessitated by good cause.

Section 11 Doctoral result

- (1) Based on the evaluations of the dissertation and on the performance at the oral defence, the examination committee decides immediately after the oral defence whether or not a doctorate is to be awarded to the candidate. All members of the examination committee must agree to the award.
- (2) If a doctorate is to be awarded, each member of the examination committee marks the oral defence according to the following marking scheme:

- 1.0 = very good
- 1,5 = very good to good
- 2.0 = good
- 2.5 = good to satisfactory
- 3.0 = satisfactory
- 3.5 = satisfactory to acceptable
- 4.0 = acceptable

Only the first digit after the decimal is to be considered; all other digits are dropped without rounding. The overall mark is the average between the average mark for the dissertation and the average mark for the oral defence.

The overall mark is classified as follows:

an average of 1.0 to 1.5 - magna cum laude (very good)

an average above 1.5 to 2.5 - cum laude (good)

an average above 2.5 to 4.0 - rite.

- (3) In cases of an outstanding performance, with an average mark of 1.0, the examination committee may unanimously decide to award the distinction "summa cum laude" (with distinction)

Section 12 Doctoral retake

- (1) If a dissertation is not accepted in accordance with section 9 subsection 5, the doctoral committee may permit a candidate to make revisions to the work. Alternatively the candidate may, if he or she wishes, be allowed to adopt a new topic, either under the previous supervisor or under a new supervisor. Such permission is granted only once.
- (2) The oral defence may be retaken only once. Any retake should take place within six months. If a candidate does not pass the oral defence at the retake, the examination procedure is terminated.
- (3) If the doctoral project is terminated according to subsection 1 or 2, the doctoral committee is to communicate this by means of a written notification, which must contain instructions for appeal.

Section 13 Publication

- (1) The dissertation must be published within two years after the oral defence. Publication is to be made in agreement with the supervisor(s). The candidate can fulfil the publication requirement by submitting to the faculty:
- a) 30 letter-press or photographic-print copies for circulation purposes,
 - or b) 4 letter-press or photographic-print copies if the dissertation is published in a journal,
 - or c) 4 letter-press or photographic-print copies if a commercial publisher undertakes distribution through the publishing trade, and proof of a print-run of 150 copies can be provided,
 - or d) 4 complete original letter-press or photographic-print copies plus a digital copy whose data format and carrier has been agreed with the university library. By submitting a digital copy, the candidate transfers to the university library and the German National Library (DNB) in Frankfurt/Leipzig the right to publish it in data networks.

The deposit copies must be on durable, wood- and acid-free paper, and firmly bound.

- (2) If the dissertation is not published in due time, all rights acquired with the doctorate are forfeited, and the degree Dr. rer.nat. or Dr. phil. may no longer be awarded by the Combined Faculty of Natural Sciences and Mathematics on the basis of the submitted dissertation. In special cases, the time limit may be extended upon timely and substantiated request from the candidate. The chair of the doctoral committee decides on extensions of up to 12 months; for extensions exceeding this period, the decision is made by the doctoral committee.

Section 14 Conferral of the degree Dr. rer. nat. or Dr. phil.

- (1) Following publication of the dissertation (section 13) the doctorate is conferred by doctoral certificate, which will be handed or delivered to the candidate. The doctoral certificate records the dissertation topic and the overall mark pursuant to section 11 subsections 2 and 3 (no distinction will be noted on the certificate if the doctorate is graded "rite"), and states the date of the oral defence and the date of degree award. The certificate is to be signed by the dean of the Combined Faculty of Natural Sciences and Mathematics and the University Rector.
- (2) Each faculty may additionally, upon prior decision by the extended faculty board (erweiterter Fakultätsrat), issue a doctoral transcript, containing the title of the dissertation, the date of oral defence, the names of the examiners, all individual marks and the unrounded overall mark (average of the individual marks) in numerals. Only the first digit after the decimal is to be mentioned, all further digits are dropped without rounding. The dean of the relevant faculty signs the report.

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- (3) The right to use the title of "Doctor" is acquired only upon receipt of the doctoral certificate.
- (4) An English translation of the doctoral certificate and transcript are to be provided upon the candidate's request, again signed by the persons named in subsection 1 clause 3. The English version will be marked as a translation of the German original. The Latin version of the overall mark will also be given in the English version of the certificate; however, will be listed alongside in brackets:

| Marking key | Overall mark | English Term |
|----------------------|-----------------|--------------|
| 1.0* | summa cum laude | excellenct |
| 1.0 - 1.5 inclusive: | magna cum laude | very good |
| 1.6 - 2.5: | cum laude | good |
| * see section 11 (3) | | |

Section 15 Honorary doctorates, renewal of a doctorate

- (1) For outstanding scientific achievement within or at the borders of natural science, the Combined Faculties of Natural Sciences and Mathematics may, with the agreement of the Senate, confer either the degree of Dr. rer. nat.h.c. or, in the case of geography candidates within the field of human geography as set out under section 1, the degree of Dr. phil. h.c.
- (2) A proposal for an honorary doctorate must be made by at least three professors, university lecturers or associate professors of the faculty concerned. The extended faculty board then decides whether the application will be forwarded on to Combined Faculties of Natural Science and Mathematics. A three-quarter majority is required. After receipt of a proposal the dean of the Combined Faculties of Natural Science and Mathematics appoints two rapporteurs, in consultation with the faculty making the application. The board of the Combined Faculties of Natural Sciences and Mathematics decides whether an honorary doctorate is to be awarded after considering the rapporteurs' reports. A three-quarter majority is required.
- (3) The degree of Dr. rer. nat. h.c. or Dr. phil. h.c. is conferred by the dean of the Combined Faculties of Natural Sciences and Mathematics through the formal handing over of an honorary doctoral certificate in which the achievements of the person receiving the doctorate are to be highlighted.
- (4) In exceptional cases a faculty may renew a doctorate on the occasion of the fiftieth anniversary of the day it was awarded.

Section 16 Revocation of applicant's doctoral status or admission to examination procedure; nullification of doctoral results

- (1) If, prior to the execution of the doctoral certificate, it emerges that the candidate met the conditions of admission through deception, or essential conditions of admission were mistakenly taken to have been satisfied, the doctoral committee may revoke the admission of a doctoral candidate or admission to the examination procedure. The same applies if facts become known that would justify the revocation of a doctoral degree under state law.
- (2) If, before the doctoral certificate is issued, it emerges that the candidate used deception in order to meet one of the requirements for the doctorate, the doctoral committee may nullify either this particular result or all prior result. In severe cases the committee may revoke admission to the examination procedure.
- (3) The candidate concerned must be heard before a decision is reached. The decision must be substantiated and served to him or her with instructions for appeal.

Section 17 Revocation of doctoral degree

- (1) Revocation of doctoral degrees is governed by state law. If the law does not specify otherwise, responsibility lies with the board of the faculty where the doctoral degree was acquired.
- (2) The candidate concerned must be heard before a decision is reached. The decision must be substantiated and served to him or her with instructions for appeal.
- (3) Subsections 1-2 also apply to the revocation of honorary doctorates. However, responsibility lies with the Combined Faculties of Natural Sciences and Mathematics instead of the board of the faculty concerned (subsection 1 clause 2).

Section 18 Entry into force, transitory provisions

- (1) The above doctoral regulations become effective on the first day of the month following their publication in the Rector's Bulletin (*Mitteilungsblatt des Rektors*). They simultaneously supersede the previous doctoral regulations of the Combined Faculties of Natural Sciences and Mathematics dated 3rd July 2003 (*Mitteilungsblatt des Rektors* dated 18/07/03, p. 377), amended on 27 September 2004 (*Mitteilungsblatt des Rektors* dated 27/09/04, p. 625).
- (2) Candidates who started doctoral work prior to the doctoral regulations becoming effective may upon request continue the doctorate according to the previously valid provisions if they do not conflict with the Act on Higher Education of the Land of Baden-Württemberg (LHG).

Appendix 1 (to section 10)

Please note that this document is a non-binding convenience translation. Only the German version of the document entitled "Promotionsordnung der Universität Heidelberg für die Naturwissenschaftlich-Mathematische Gesamtfakultät" [published in the Rector's Bulletin (*Mitteilungsblatt des Rektors*), 25 September 2006, page 767 et seq., corrected in the Rector's Bulletin, 18 December 2006, page 1199, last amended on 10 April 2014 in the Rector's Bulletin, 30 April 2014, p. 281]] has legal validity.

Doctoral subjects (subject fields):

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| Astronomy: | Practical astronomy Theoretical astronomy |
| Biology : | Biochemistry/Biophysics Bioinformatics/ Computational biology Botany Molecular biology Ecology Cell biology Zoology |
| Chemistry | Inorganic chemistry Biological chemistry Organic chemistry Physical chemistry Theoretical chemistry |
| Earth sciences | |
| Geography | Human geography Geographic information systems Physical geography Regional research |
| Geology-Palaeontology | General, Applied and Regional geology Isotopic geology Palaeontology Environmental geochemistry |
| Mineralogy | Isotopic geology Crystallography Petrology, geochemistry and sedimentology Environmental geochemistry |
| Computer science | Applied computer science Practical computer science Technical computer science Theoretical computer science |
| Mathematics | Applied mathematics Pure mathematics |

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| Pharmacy | History of pharmacy Pharmacology Pharmaceutical biology and biotechnology Pharmaceutical chemistry Pharmaceutical technology and bio-pharmaceutics | |
| Physics | Applied physics Experimental physics Theoretical physics | |

Appendix 2 (faculty-specific regulations)

Biological sciences

History of Pharmacy

Candidates who have written their dissertation within the field of "history of pharmacy" must, when seeking admission to the examination procedure in accordance with section 8, submit, along with the documentation required by section 8 subsection 3, written confirmation of their successful participation in the following taught courses:

1. One exercise (Übung) on auxiliary sciences of history
2. One advanced course (Hauptseminar) on medieval and modern history
3. One basic course (Proseminar) on "history of pharmacy"
4. Two advanced courses (Hauptseminare) on "history of pharmacy"

Addition to section 6 subsection 1-4

1. Organisation, aims and participation in the structured doctoral programme
 - (1) The Faculty of Biosciences offers a doctoral programme as in section 6 that includes research-oriented training.
 - (2) The aims of the doctoral programme are to provide continuous support for dissertation work and to further theoretical and practical knowledge in order to prepare the doctoral candidate for future independent scientific activity.
 - (3) Participation is mandatory for doctoral candidates enrolled in a doctoral subject within the Faculty of Bioscience pursuant to section 5.
2. Supervision of dissertation work

Please note that this document is a non-binding convenience translation. Only the German version of the document entitled "Promotionsordnung der Universität Heidelberg für die Naturwissenschaftlich-Mathematische Gesamtfakultät" [published in the Rector's Bulletin (*Mitteilungsblatt des Rektors*), 25 September 2006, page 767 et seq., corrected in the Rector's Bulletin, 18 December 2006, page 1199, last amended on 10 April 2014 in the Rector's Bulletin, 30 April 2014, p. 281]] has legal validity.

- (1) Upon admission of a doctoral candidate to a doctoral subject within the Faculty of Biosciences, a second supervisor must be appointed in addition to the main supervisor (see section 5 subsection 1 letter f). As a rule, the second supervisor must be a professor, university lecturer or associate professor. He or she should belong to the Faculty of Biosciences at Heidelberg University, but the doctoral committee may appoint a professor, university lecturer or associate professor from another faculty or from another university as a second supervisor. External supervisors must have positions comparable to that of a German professor, university lecturer or associate professor; the same applies to leaders of independent research teams. Reference is made to the regulations on dissertation evaluators set forth under section 9 subsection 2.
- (2) Within six months after taking up dissertation work, doctoral candidates will submit to the doctoral committee a written dissertation schedule agreed with their first and second supervisors. Candidates must provide an update by means of a written report by the end of the second year. Further written reports must be submitted with each and any candidate request to extend the duration of doctoral training as in section 5 subsection 4.

3. Doctoral training

- (1) Literature and research seminars of 1-2 weekly class hours per semester each are mandatory, as well as compulsory elective courses such as methods courses and seminars, lab rotations, doctoral forums and poster presentations of their own work together with other doctoral candidates of 1-2 weekly class hours per semester. Written confirmation of successful course participation is required.
- (2) The seminar series offered by the scientific institutions that represent the doctoral subjects offered by the Faculty of Biosciences as set out under the appendix to section 10 are also a component of doctoral training. Doctoral candidates are strongly encouraged to attend these seminars (section 6 subsection 3). Candidates are expected to focus on seminars that are thematically and methodologically related to their dissertation, but should also attend presentations dealing with themes from other disciplines within the biosciences. Reference is made to the regulations governing the content of the oral defence (section 10 subsection 4).
- (3) Successful participation in the doctoral programme is certified on the doctoral transcript (section 14 subsection 2).

Addition to section 7 subsection 2

Dissertations by publication are not permitted within the Faculty of Biosciences.

Chemistry and Geoscience

Addition to section 6 subsections 2 and 3

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It is not necessary to present a research plan within the subjects of chemistry and geosciences. A structured doctoral programme is currently not in place.

Addition to section 7 subsection 2

Dissertations by publication are not permitted within the subject of chemistry, but are permitted in the subject of geoscience.

Mathematics and computer science

Addition to section 6 subsections 2 & 3

It is not necessary to present a research plan within the subjects of mathematics and computer science. A structured doctoral programme is currently not in place.

Addition to section 7 subsection 2

Dissertations by publication are not permitted within the Faculty of Mathematics and Computer Science.

Addition to section 10 subsection 2

If a candidate applies to include an additional subject within their oral defence in accordance with section 10 subsection 2 the required meaningful relationship to mathematics is adjudged to be present - in addition to the subjects listed in the appendix to section 10 - in the following subjects: medicine, philosophy, psychology, economics.

Physics and astronomy

Addition to section 4 subsection 2

The minimum mark required for admission to a doctorate in the Faculty of Physics and Astronomy is fixed at the unrounded overall mark of 2,0. In individual cases, applicants with a mark worse than the minimum mark may be admitted for special reasons following a decision by the doctoral committee.

Addition to section 6 subsection 2

Doctoral candidates should, in agreement with their supervisor, present a dissertation schedule to the doctoral committee at the latest six months after taking up dissertation work.

Addition to section 6 subsection 3

Doctoral candidates in physics are obliged to participate in a structured doctoral programme of the faculty (e.g. research training groups) to further their subject knowledge. Programmes consist of regular block courses, and other events taking place throughout the semester, which are announced separately. All courses attended must be listed in the application for admission to the examination procedure (section 9 subsection 3 f). Candidates are expected to take

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part in courses totalling at least 4 weekly class hours per semester; a block course attended in the context of the "Graduate Days" counts as 1 weekly class hour per semester. The content of the events listed may be examined during the oral defence. For doctoral candidates within astronomy the regulations in the astronomy plan of studies are authoritative.

Doctoral candidates who participate in the programme of a German Research Foundation (DFG) research training group are exempted from the above regulations.

Addition to section 7 subsection 2

Dissertations by publication are permitted within the Faculty of Physics and Astronomy, but only if the publications that are used cover the required components of the doctorate, and the work contained can be identified unambiguously as that of the doctoral candidate. In this case, the dissertation must include a convincing introduction and summary that clearly place the results in scientific context. Details are governed by the guidelines of the Faculty of Physics and Astronomy.

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