

**Regulations as to Content and Examinations of the Ph.D. Programmes  
and structured PhD Programmes at the Graduate School Science and Technology,  
Faculty V, Carl von Ossietzky University Oldenburg**

**as of 18 August 2009**

Original: Faculty V of Carl von Ossietzky University Oldenburg has issued the following regulations for study contents and examinations of the Ph.D. programmes at the Graduate School "Science and Technology" on 24 June 2009 in accordance with § 44, paragraph 1 sentence 1 NHG in the form of the new announcement dated 2/26/2007 (Nds. GVBl. p. 69 – VORIS 22210). The following regulations were approved by the presiding committee on 07/07/2009 in accordance with §§ 37 paragraph 1 sentence 3 no. 5 b), 44 paragraph 1 sentence 3 NHG.

Including first Amendment: As of 14 October 2010

Including second Amendment: As of 10 January 2013

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## **Preamble**

An interdisciplinary graduate school "Science and Technology" has been established with the aim of preparing the graduates of the Ph.D. programmes and the graduate school in different special fields of the Faculty of Mathematics and Sciences of Carl von Ossietzky University Oldenburg for their professional activities. Graduates will not only qualify themselves on an international standard, but will additionally acquire special competences enabling them to successfully hold their ground in their professional life. As part of the Ph.D. programmes, special structures and offers have been developed encouraging female graduates to continue their academic career.

### **§ 1**

#### **Range of application**

(1) Aims, contents, course and graduation are determined by these regulations based on the appertaining "Regulations of special admission conditions" for the Ph.D. programmes and structured PhD programmes of the graduate school "Science and Technology"<sup>1</sup> (at present: "Neurosensory Science and Systems", "Interface Science" and "Environmental Sciences and Biodiversity", "Renewable Energy"). On the decision of the Faculty board, the range of application of these regulations can be extended to further Ph.D. programmes of the Faculty of Mathematics and Sciences.

(2) In this first part, the regulations determine the general provisions applicable to all Ph.D. programmes of the graduate school.

(3) Moreover, particularities of the individual programmes are regulated in the appendices specific to the Ph.D. programmes.

(4) The doctoral regulations are applicable to the promotion procedure.

### **§ 2**

#### **Aims of study**

The aim of the Ph.D. programme accompanying the dissertation work is an advanced training for qualified students in the theoretical fields and methods of the graduate school "Science and Technology" and its areas of application. In accordance with the recommendation by the Standing Conference of Education Ministers (Kultusministerkonferenz) of 04/21/2005 (frame of qualification) the programmes offer students the possibility to get further qualifications in the fields of advanced and extended specialized knowledge and to develop further competences in the access to knowledge. Students are to be enabled to independently identify scientific questions, to develop and perform projects and to present the results of their research. They will learn to apply and to extend the relevant hypotheses and theories of the research field. Additionally, their qualification for critical analysis, development and synthesis of novel ideas will be promoted. The interdisciplinary conception will enable the students to rate their scientific work within the entire range of social development and to realize the venture potential of their own research. All elements are to be applied in such a way that they support an early scientific

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<sup>1</sup> The Ph.D. programmes being usually oriented to the main research fields, they are set up on a long-term basis but not on a permanent basis.

independence of the Ph.D. students.

The internationality of the scientific community demands students to acquire an active command of a least one foreign language (generally English). The Ph.D. students are to be enabled to discuss scientific subjects with expert colleagues and also with laymen in an accomplished way. Structured and hypothesis-based thinking, communication and supervision competences as well as the ability to work efficiently in international teams are the basis of professional success. The modules offered in the programme serve to reach these aims.

### **§ 3**

#### **Purpose of module examinations**

(1) The module examinations serve to determine whether the student has acquired the thorough knowledge and skills required for professional practice, whether she or he is able to survey the technical relations, to successfully apply scientific results to practical work and to work independently.

(2) The examinations in the Ph.D. programme prove the additional qualification beyond the dissertation to be submitted. The demands of the examinations guarantee the standard of the programme relating to the usual study period as well as to the state of science and the demands of professional practice.

### **§ 4**

#### **Ph.D. Programme Certificate, Conferment of Academic Degree**

(1) The examination results and the successful conclusion of the Ph.D. programme are certified by a certificate (Appendices 4 and 5) and a Diploma Supplement (Appendix 6) in addition to the Ph.D. diploma issued by the Faculty of Mathematics and Sciences responsible for the Ph.D. programme. The programme is concluded when the criteria of § 19 are fulfilled.

(2) The award of the academic degree of Doctor of Sciences (*Doctor rerum naturalium*, abbr.: Dr. rer. nat.) or of Doctor of Engineering Sciences (abbr.: Dr.-Ing.) or Doctor of Philosophy (*Doctor philosophiae*, abbr.: Dr. phil.) upon successful final assessment of the promotion by the responsible promotion committee depends on the valid doctoral regulations of the Faculty V of Mathematics and Sciences or other faculties of Oldenburg University. The Ph.D. diploma is issued in accordance with the doctoral regulations.

### **§ 5**

#### **Duration, extent and structure of study**

(1) The regular time limit until completion of the programme is six semesters (three years of study). The programme has a total of 30 credit points (CP). Students changing to a new specific field can be demanded by the Admissions Committee to take additional modules in order to acquire the fundamental skills required for the Ph.D. programme. The additional modules do not exceed a scope of maximally 30 credit points and are to be determined by the Admissions Committee.

(2) The modules offered in the Ph.D. programme are divided into three domains:

**a) Extending and improving special knowledge**

This area focuses on special knowledge and skills required for preparing the Ph.D. thesis. Regular participation in colloquiums, congresses and summer schools counts among it. In lectures specifically oriented by the subject of the dissertation held at Oldenburg University and other universities and institutions (e.g. workshops for learning special techniques), a systematic knowledge of the research area and relevant methods is acquired in accordance with the qualification frame for German university graduations. By visiting laboratories abroad and attending international meetings the Ph.D. candidates establish international contacts and thus extend their research surroundings. The tables in the appendices relating to specific Ph.D. programmes give a survey of the corresponding modules in the respective Ph.D. programmes. Modules counting at least **12 CP** are to be passed in the domain "Extending and improving special knowledge".

**b) Communication and teaching**

The second domain deals with the acquisition of communicative and academic didactical competences. The Ph.D. candidates acquire and apply teaching skills and experiences. In the seminars, advanced presentation techniques, scientific publication (German and English as scientific languages), and university teaching methods are to be reflected and practised. The modules of this domain mainly enhance the communicative competences specified in the qualification frame for German university graduations on the Ph.D. level. The tables in the appendices relating to the Ph.D. programmes give a survey of corresponding modules in the respective Ph.D. programmes. Modules counting at least 6 CP are to be passed in the domain "Communication and teaching".

**c) Interdisciplinary competences**

The third domain mainly deals with extra specific skills serving the candidates in developing their scientific career. For example, this domain comprises the outline of structured research projects, applications for funds, e.g. for stipends, practising scientific publications with an own work aiming for publication in international reviewed journals. Moreover, modules are offered, which deal with skills of application and other soft skills (leading discussions, moderation, chairmanship) and areas of exceptional importance to the professional career. The listed modules improve the candidates' skills in systematic and instrumental competences mentioned in the qualification frame of German university graduations on the Ph.D. level. The tables in the appendices relating to the Ph.D. programmes give a survey of the corresponding modules in the respective Ph.D. programmes. Modules counting at least 6 CP are to be passed in the domain "Interdisciplinary competences".

(3) Stay abroad: In order to optimally prepare Ph.D. candidates for the international job market, it is important for them to come to know different research cultures and traditions. Therefore, at least one extended or several short project-related research sojourns in laboratories outside Oldenburg University, preferably in a foreign country, are recommended. A laboratory stay should not be less than three weeks, if possible.

(4) Thesis committee: A thesis committee takes responsibility in supervising the Ph.D. candidate. Besides the chief supervisor, two additional members including external scientists belong to this committee in accordance with § 9 of the doctoral regulations of the Faculty of Mathematics and Sciences. As a rule, one member of the thesis committee is the second referee according to § 11 of the doctoral regulations of the Faculty of Mathematics and Sciences. As a rule, the additional member should have a doctor's degree. By agreement with

the Ph.D. candidate, the thesis committee can be extended by a further person. The thesis committee is composed by the chief supervisor and the Ph.D. candidate in mutual agreement. The chief supervisor makes a supervision agreement with the Ph.D. candidate within the frame of the respective Ph.D. programme according to § 5 (5).

(5) Supervision agreement: A supervision agreement is to make the relationship between Ph.D. candidates and supervisors transparent with regard to contents and time. Working or stipend contracts are not affected by a supervision agreement. Planning and performance of a doctoral project are to be arranged by a structured cooperation between supervisor and Ph.D. candidate in an independent way such that the project can be concluded with high-grade results within an adequate time period. A supervision agreement states at least the persons involved, the subject or title of the Ph.D. thesis, a time and working schedule as well as the rights and responsibilities of the Ph.D. candidate and the supervisor. Additionally, regulations are to be determined ensuring that the Ph.D. candidate is integrated within a working group or research network, that an adequately equipped working place is available, that the rules of good scientific practice are fulfilled and that family and scientific work are compatible.

## **§ 6**

### **Examination Committee**

(1) A separate Examination Committee is formed from the members of the Faculty of Mathematics and Sciences of Carl von Ossietzky University of Oldenburg for every Ph.D. programme in order to organize the examinations and to deal with the responsibilities inferred from these regulations. The Examination Committee consists of five members, namely three members from the group of professors, one member of the scientific associates who is a regular and full-time teacher, as well as one member from the group of students in the Ph.D. programme. The members of the Examination Committee and their permanent deputies are elected by the respective group representatives in the faculty board of Faculty V. The chairperson and deputy chairperson are elected by the Examination Committee from its members. The chairperson must be a member of the group of professors. The student member does not participate in meetings concerning the assessment and counting of examination performances and advance examination performances.

(2) The Examination Committee ensures that examinations are duly executed, taking care that the provisions of the Niedersächsisches Hochschulgesetz (NHG) (legislation governing university education in the State of Lower Saxony) and the present regulations are complied with. The Examination Committee is supported by the Akademisches Prüfungsamt (examination office) of Carl von Ossietzky University Oldenburg, which also keeps the examination records. The Examination Committee regularly reports on the development of examinations and study times to the Faculty V; especially in respect of the compliance with the regular period of study and examination delays as well as on the distribution of individual and overall grades.

(3) The Examination Committee make their decision with the majority of valid votes; abstentions from voting are regarded as non-votes. In case of parity of votes, the chairman has the casting vote. The Examination Committee constitutes a quorum when three members two of whom belong to the group of professors are present.

(4) The members of the Examination Committee have a term of two years, the student members having a term of one year.

(5) Moreover, the internal rules of procedure of Oldenburg University apply. A record is kept of the meetings of the Examination Committee. The essential subjects of discussion and the decisions made by the Examination Committee are to be taken down on record.

(6) The Examination Committee can transfer competences to the chairperson or deputy chairperson until revoked. The chairperson prepares the decisions of the Examination Committee and executes them. She or he reports on this activity to the Examination Committee at regular intervals.

(7) The meetings of the Examination Committee are not open to the public. The members of the Examination Committee and their deputies are subject to official secrecy. In case they are not public service employees, they are to be sworn to secrecy by the chairperson.

(8) The Examination Committee advises students about the applicable examination regulations in writing in an appropriate way.

(9) The Examination Committee can decide to make decisions and other measures taken according to these regulations public within the university, especially registration dates and examination dates, examination periods as well as examination results,. The privacy of personal data is to be observed.

## **§ 7 Examiners**

(1) Module examinations are performed by members and associates of Carl von Ossietzky University Oldenburg or of another university, who are authorized to independent teaching in the respective examination subject or part of it. The Examination Committee ensures that the examiners are authorized to independent teaching in the respective subject or part of it.

(2) Article 6, paragraph 8 applies to the examiners accordingly.

(3) The module examination of a module is to be performed by the teachers of that module, who are authorized to perform examinations according to paragraph 1. The module examinations are usually assessed by an examiner.

(4) The examiners are appointed by the faculty board of Faculty V.

## **§ 8 Crediting of study times and examination performances**

(1) Study times, practical professional activities and examinations in comparable courses of study at a university in the Federal Republic of Germany or in a European or non-European education system are credited on application, if they are considered equivalent. They are to be considered equivalent, if study times, practical activities and examination results generally correspond with modules of the respective Ph.D. programme as regards contents, extent and required standards. It is not a schematic comparison but a general consideration and assessment with respect to the significance of performances for the purpose of the examinations according to § 2. Decisive for the equivalence of a study abroad are the equivalence agreements approved by the Conference of the Ministries of Education and the

Conference of University Directors or other interstate agreements. If there are no such agreements or if a farther reaching crediting is applied for, the Examination Committee decides on the equivalence. In order to settle the factual and legal questions, the Zentralstelle für ausländisches Bildungswesen (centre for foreign education systems) can be asked for an expert opinion. Diverging crediting provisions based on agreements with foreign universities (cooperation agreements, university partnerships) remain unaffected.

(2) If the conditions according to paragraph 1 are fulfilled, there is a claim for crediting. The Examination Committee decides on the crediting on the student's application.

(3) Crediting according to paragraphs 1 and 2 can amount to maximally 30 credit points (CP).

(4) For crediting study and examination performances, credit points are adopted as "passed" – as far as credit systems are comparable.

## **§ 9**

### **Admission to modules and module examinations**

(1) A module can be taken by students registered in the respective Ph.D. programme of the graduate school and by students from Ph.D. programmes of other universities that have made an agreement with Oldenburg University. Students registered for a module are admitted to all examinations related to that module.

(2) Registration for a module examination has to be done in writing and in due time.

(3) The performance in every module is assessed. Examinations are related to the module accompanying the studies and are to be completed by the end of the semester in which the last lecture of the module is given.

## **§ 10**

### **Module examinations**

(1) The type and number of module examinations or partial examinations are determined by the examiners within the scope of possibilities of § 5 and are communicated to the students by module descriptions.

(2) Module examinations in the form of a group work by two persons are to be admitted in principle in an appropriate way. The examination performance of the individual student must meet the requirements of the examination and must be distinctively recognizable as an individual performance by marked sections, pages or other objective criterions.

(3) With the lectures offered, the faculty ensures that the module examinations can be taken.

(4) In case the candidate makes credible that she or he is not able to take the module examinations as a whole or in part in the required form because of long-term or permanent physical ailments or a handicap or because of a child to be cared for in the own household, the Examination Committee can allow her or him to take equivalent module examinations in another form. For this purpose, a doctor's certificate can be demanded.

## § 11

### Default, withdrawal, cheating, irregularities

(1) An examination is considered to be “not passed”, if the student

1. does not appear at the set date and time, or
2. withdraws from the examination during the examination without good reason.

(2) The reasons for withdrawal or default must be made known to the Examination Committee in writing without delay and made credible; otherwise the examination is considered to be “failed”. Removal from the register of students or leave of absence is no good reason. In case of illness, a doctor’s certificate has to be presented, as far as the illness is not obvious. The Examination Committee can demand an official medical certificate. If the reasons are admitted, a new date is fixed, generally the next regular examination date. Previous examination performances are to be credited in that case.

(3) In case the student tries to improve the performance by cheating or by using inadmissible aids, the examination is considered to be “failed”. Candidates who have violated the examination regulations can be excluded from the respective examination. In that case, the respective examination is considered to be “failed”. Decisions are made by the Examination Committee according to sentences 1 and 2 after hearing the student. Until the Examination Committee has made a decision, the student continues the examination, unless the supervising person decides that a preliminary exclusion of the student is indispensable for a regular continuation of the examination. In particularly serious cases of cheating, the Examination Committee can finally exclude the student from the examination procedure and from further examinations.

(4) In case the term of delivery is not met without good reasons in an examination, the examination is considered to be “failed”. Paragraph 2, sentences 1 to 4 apply accordingly. In case the term of delivery cannot be met for good reasons, the Examination Committee decides on whether the term of delivery can be extended correspondingly considering the principles of equal chances and of the priority of scientific performance over the compliance with procedural provisions.

## § 12

### Appraisal of examination performance

(1) As a rule, module examinations are not graded but assessed as “passed” or “failed”. The assessment has to be made within three weeks by the examiners and to be forwarded to the examination office in charge.

(2) In case a module examination is graded, the following grading scale is to be applied:

- |                  |  |
|------------------|--|
| 1 = very good    | an outstanding result,   |
| 2 = good         | a result considerably above the average requirements,                            |
| 3 = adequate     | a result that meets the average requirements in every respect,                   |
| 4 = satisfactory | a result that meets the minimum requirements despite its faults,                 |
| 5 = failed       | a result that does not meet the minimum requirements due to considerable faults. |

For a differentiated assessment, the grades can be raised or lowered by 0.3, excluding the



grades 0.7, 4.3, 4.7 as well as 5.3.

A graded module examination is considered to be “passed”, if a grade of at least “satisfactory” is achieved.

(3) These grades of module examinations are not considered for the assessment according to paragraph (4).

(4) The Ph.D. thesis is assessed in accordance with the valid doctoral regulations of the respective faculties of Oldenburg University.

### **§ 13**

#### **Repetition of module examinations**

(1) Failed module examinations can be repeated twice. In case the third examination is assessed as “failed” or is considered to be “failed” and a repetition according to paragraph 2 is not possible, the examination is considered to be finally failed.

(2) A repeated examination is performed with at least one examiner and one observer as a single examination. The observer must have a degree of at least Dr. rer.nat., Dr. Ing., Dr. phil. or a comparable or higher degree. The decisive subjects of the examination, its assessment and the fundamental considerations of the assessment are to be recorded in a protocol to be signed by the examiner and the observer.

Repeated examinations including partial module examinations are to be taken within an adequate delay. They should be taken within a study year at the latest. All module examinations have to be passed within four years after registration in a doctoral programme.

(3) If the required modules and credit points, respectively, are not achieved before the Ph.D. thesis is submitted, this fact does not affect the doctoral procedure in accordance with the regulations of the respective faculty. The degrees of Doctor of Sciences (Dr. rer.nat.), Doctor of Engineering (Dr. Ing.) or Doctor of Philosophy (Dr. phil.) can be conferred by Carl von Ossietzky University, before the Ph.D. programme has been passed. However, a certificate of the extended qualifications achieved in the Ph.D. programme is not issued in that case.

### **§ 14**

#### **Certificates**

(1) The certificate of the extended qualifications achieved by the Ph.D. programme is handed over together with the Ph.D. certificate. The date stated is the day of disputation.

(2) In case the student leaves the University or changes programmes, a certificate is issued on application specifying the examinations passed and their results, if applicable. For the purpose of applications, a preliminary certificate on passed examinations can be issued on request.

## **§ 15**

### **Invalidity of examination**

- (1) In case of deceit and if this fact becomes known only after the certificate has been handed over to the graduate, the Examination Committee can subsequently rectify the grades of those examination performances for which the student's cheating has been proved and can declare the examination completely or partially "failed".
- (2) If the requirements for admission to an examination were not fulfilled without the student wanting to cheat and if this fact becomes known only after the certificate has been handed over to the student, this formal defect is cured through the examination passed. In case the admission was wrongfully obtained with intent, the Examination Committee decides about the abandonment of illegal administrative acts under consideration of the legal regulations.
- (3) Prior to a decision, the student is to be given the opportunity to discuss the matter with the Examination Committee.
- (4) The incorrect examination certificate is to be withdrawn and to be replaced by a correct certificate according to § 15. Together with the incorrect examination certificate, also the diploma is to be withdrawn, when the examination has been declared to be "failed" because of cheating. A decision according to paragraphs 1 and 2, sentence 2, is excluded after a period of five years from the date of the examination certificate.

## **§ 16**

### **Access to examination records**

- (1) On request the student is informed about partial results before the examination is completed.
- (2) Upon completion of each subject examination or partial subject examination the student is afforded access to her/his written examination papers, the related comments made by examiners, and to the examination minutes on application.
- (3) The application is to be submitted to the chairman of the Examination Committee within one year after the announcement of examination results at the latest. The chairman of the Examination Committee decides about place and time of access to the files. The Examination Committee can assign tasks according to sentences 1 and 2 to the examiners.

## **§ 17**

### **Public announcements by Examination Committee**

- (1) The Examination Committee makes these examination regulations public at the university and appropriately informs students about the examination regulations applying to them.
- (2) The Examination Committee can decide that decisions and other measures taken in accordance with these examination regulations, especially admission to examinations, denial of admission, entry and examination dates and periods as well as examination results, are made public at the university in the customary way. Legal data protection regulations are to be considered. Their decision is to be made public at the university in the customary way.

## **§ 18**

### **Individual case decisions, protest procedure**

(1) Notices of rejection and other adverse administrative acts taken according to these examination regulations are to be justified in writing, to be provided with a statement of legal remedy and to be announced in accordance with § 41 Verwaltungsverfahrensgesetz (administrative procedure regulations). Protest against an assessment of an examination performance can be raised with the Examination Committee within one month after receipt of the notice in accordance with §§ 68 and the following of the Administrative Court regulations.

(2) The Examination Committee decides about the protest.

(3) The Examination Committee forwards the protest to the examiner for verification and comments. If the examiner alters the assessment according to the application, the Examination Committee redresses the protest. Otherwise, the Examination Committee investigates the decision on the basis of the examiner's comments, in particular whether

1. the examination procedure was not carried out duly,
2. the assessment was based on incorrect facts,
3. generally applicable assessment principles were neglected,
4. a defensible and well-founded solution was considered to be wrong,
5. the examiner was guided by irrelevant considerations.

The same applies to a protest directed against assessments by several examiners.

(4) On the application of the student, the Examination Committee appoints an expert for the protest procedure. The expert must be qualified according to § 7, paragraph 1. The student and the expert are to be given the opportunity to state their points of view, before a decision is made according to paragraphs 2 and 6.

(5) When the Examination Committee establishes the incorrectness of the assessment according to paragraph 3 without the examiner altering her or his decision, the examinations are newly assessed by other examiners who were not involved in the respective examination or the oral examination is repeated.

(6) A decision about the protest is to be made within one month after receipt of the substantiated protest. If the protest is not redressed, the adverse decision is to be justified in writing and to be provided with a statement of legal remedy.

(7) The protest procedure must not lead to a worse examination grade.

## **§ 19**

### **Completion of Ph.D. programmes**

The Ph.D. programme is completed when modules of at least 30 credit points in the relation stated under § 5 (2) have been passed successfully, any conditions of the Admissions Committee have been fulfilled and the promotion procedure has been opened upon submission of the dissertation to a faculty of Carl von Ossietzky University.

## **§ 20** **Admission to promotion**

Admission to promotion is subject to the doctoral regulations of the faculty at which admission is applied for.

## **§ 21** **Taking effect**

(1) Upon approval by the university administration of Carl von Ossietzky University these regulations take effect the day following their announcement in the official information bulletin (Amtliche Mitteilungen) of Carl von Ossietzky University.

### **Appendices:**

Appendix 1: Particularities of the Ph.D. programme “Neurosensory Science and Systems”

Appendix 2: Particularities of the Ph.D. programme “Interface Science”

Appendix 3: Particularities of the Ph.D. programme “Environmental Sciences”

Appendix 4: Particularities of the structured Ph.D. programme “Renewable Energy”

Appendix 4: Certificate on promotion in German

Appendix 5: Certificate on promotion in English

## Appendix 1: Particularities of the PhD Programme “Neurosensory Science and Systems”

### Relating to § 5 Paragraph 1:

Supplements for graduates of the Ph.D. programme “Function and Pathophysiology of the Auditory System (“Hearing”):

One-week laboratory rotations are regularly offered covering the basic representation and knowledge of the methodological spectrum of the Ph.D. programme. An offer is arranged from which the participants of the Ph.D. programme can select parts and which is actualized along the current methodological research orientation of the involved research groups. In order to obtain the required number of credits, usually 3 elective courses or 5 seminars/laboratory rotation and participation in at least one summer school are required in addition to the two obligatory modules.

### Relating to § 5 Paragraph 2:

**Table 1): Modules related to the field “Extending and Improving Specialised Knowledge”**

Module Title	Module Type	Credits	Module Examination
A 1 Summer school/congress	Elective	3 - 6	Oral report <i>and/or</i> record <i>and/or</i> discussion of the poster <i>and/or</i> assessment of a sample presentation
A 2 Lab visit abroad	Elective	6	Oral report <i>and/or</i> records
A 3 Special techniques in Neurosensory Science and Systems	Elective	3 - 12	Records <i>and/or</i> oral examination (30 min.) or written examination (2 hrs) <i>and/or</i> seminar paper
A 4 Medical basics of Neurosensory Science and Systems	Elective	3 - 6	Records <i>and/or</i> oral examination (30 min.) or written examination (2 hrs) <i>and/or</i> seminar paper
A 5 Data analysis using Matlab	Elective	3	Assessed exercises
A 6 Journal club	Elective	3	Participation and presentation
A 7 Colloquium Neurosensory Science and Systems	Compul- sory	3	Participation <i>and/or</i> presentation
A 8 Additional module „Specific knowledge”	Elective	3 - 6	Record <i>and/or</i> oral examination (30 mins.) or written examination (2 hrs.) <i>and/or</i> seminar paper

The Examination Committee may, on request, recognize more credits from the module A 8  
“Extending and Improving Specialised Knowledge”

**Table 2): Modules related to the field “Communication and Imparting of Knowledge”**

Module Title	Module Type	Credits	Module Examination
B 1 Advanced presentation techniques	Compul- sory	3	Participation and 2 presentations
B 2 Summer school/congress	Compul- sory	3	Oral report and/or assessed poster discussion and/or assessed trial presentation
B 3 Language course	Elective	3 - 6	Oral report and/or assessed poster discussion and/or assessed trial presentation
B 4 Additional module „Communication”	Elective	3 - 6	Oral report and/or assessed poster discussion and/or assessed trial presentation

**Table 3): Modules related to the field “Interdisciplinary Competences”**

Module Title	Module Type	Credits	Module Examination
C 1 Basics in distribution-free statistics	Elective	3	Assessed exercises
C 2 Experimental design and variance analysis	Elective	3	Assessed exercises <i>and/or</i> oral examination (30 min.) or written examination (2 hrs.) <i>and/or</i> record
C 3 Numeric and computer skills	Elective	3	Assessed exercises <i>and/or</i> oral examination (30 min.) or written examination (2 hrs.) <i>and/or</i> record
C 4 Scientific publishing	Compul- sory	6	Assessed manuscript
C 5 Transferable skills /scientific career	Elective	3 - 9	Participation
C 6 Mentoring	Elective	6	Participation
C 7 Additional module „Transferable Skills”	Elective	3 - 6	Assessed exercises <i>and/or</i> oral examination (30 min.) or written examination (2 hrs.) <i>and/or</i> record

The Examination Committee may, on request, recognize more credits from the module C 7  
“Interdisciplinary Competences”

**Relating to § 6 Examination Committee:**

Paragraph 1: The examination committee consists of members of Faculty V “Mathematics and Sciences” of Carl von Ossietzky University Oldenburg as well as of the Research Centre “Neurosensory Sciences”.

Paragraph 2: The examination committee reports to Faculty V and to the Research Centre “Neurosensory Sciences”.

## **Appendix 2: Particularities of the Ph.D. programme “Interface Science”**

### **Relating to § 5 Paragraph 1:**

In addition to general qualification aims, students are to gain the following skills and qualifications:

- The graduates of the programme have a systematic knowledge in addition to the physical and chemical knowledge of interfaces, a knowledge of how to prepare particularly functional related fields of study also within nano-scale molecular interfaces and materials with controllable and switchable properties and how to use them in technical applications such as energy conversion, catalysis, photonics including biological and biometrical related fields. They are familiar with relevant methods and are proficient in applying them independently. Moreover, they have an extensive knowledge of the relevant specialized literature.
- The graduates have an overview of the related disciplines.
- They are capable of conceiving, organizing and implementing a substantial research process.
- Within the scope of their Ph.D. thesis, they have extended the limits of knowledge by a substantial research contribution that meets the standards of nationally and internationally reviewed publications in its essential parts and distinctly exceeds a mere replication of previously known facts.
- The graduates are capable of critically analysing, evaluating and synthesizing new and complex ideas.
- The graduates have profound specialized and interdisciplinary qualifications enabling them to practise their profession within and outside the university.
- The graduates are able to advance the social, scientific and technical progress deliberately and actively.
- The graduates can assess the social implications of their research results.
- The graduates are able to communicate their research field and its results to the close scientific surroundings, to the large scientific community as well as to the society in general.

The modules offered within the scope of the programme serve to achieve these aims. Included are socio-ecological and economically relevant aspects of related fields, relevant materials and applications as well as interdisciplinary study subjects. Further aspects of related fields investigated at CIS and cooperating institutions may be incorporated in the Ph.D. programme.



## Relating to § 5 Paragraph 2:

**Table 1): Modules related to the field “Extending and improving specialised knowledge”**

Module Title	Module Type	Credits	Module Examination
A 1 - 1 Surfaces and nano-materials	Elective	3	Oral examination, max. 45 mins.
A 1 - 2 Integrated chemical systems	Elective	3	Oral examination, max. 30 mins.
A 1 - 3 Art of synthesis	Elective	6	Oral lecture with discussion, record
A 1 - 4 Practice of synthesis (iSynthesis)	Elective	6	Oral lecture with discussion, record
A 1 - 6 Biological membranes and cellular signalling	Elective	3	Presentation in the seminar and participation
A 1 - 7 Many-body theory	Elective	6	Written examination (2 hrs.) or 30 min. oral examination
A 1 - 8 Quantum solar energy conversion	Elective	3	Oral examination, max. 45 mins.
A 1 - 9 Radiation propagation in small-scale structured matter	Elective	3	Oral examination, max. 45 mins.
A 1 - 10 Molecular reaction dynamics	Elective	6	Written examination (2 hrs.) or 30 min. oral examination
A 1 - 11 Introduction to quantum chemistry	Elective	3	Written examination (2 hrs.) or 30 min. oral examination
A 1 - 12 Micro robotics II	Elective	6	Oral examination, max. 45 mins.
A 1 - 13 Fundamentals of nanostructured matter	Elective	3	Oral examination, max. 30 mins.
A 1 - 14 Applied nanotechnology	Elective	2	Presentation in the seminar and participation
A 1 - 15 Laser physics	Elective	2	Oral examination, max. 30 mins.
A 1 - 16 Ultrafast optics and spectroscopy	Elective	3	Oral examination, max. 30 mins.
A 1 - 17 Modern techniques of optics and spectroscopy	Elective	3	Oral examination, max. 30 mins.
A 1 - 18 Synthesis and characterisation of catalysts	Elective	3	Oral examination, max. 30 mins.

Module Title	Module Type	Credits	Module Examination
A 2 Special topics of Interface Science	Elective	1 - 9	Depending on course, oral examination of max. 45 min, written examination of max. 135 min, written report and experimental records
A 3 Colloquium of CIS/GdCh/Chemistry/Physics	Compulsory	3	Participation in 30 lectures of at least 1 hr.
A 4 - 1 Aspects of modern organic chemistry	Elective	3	Seminar presentation, elaborations, participation in 14 lectures
A 4 - 2 Modern electrochemistry	Elective	1 - 2	Participation and seminar presentation in the native or a foreign language
A 4 - 3 Retro synthesis and synthesis planning (iSynthesis)	Elective	3	Assessed exercises, oral lectures with discussion
A 5 Temporary embedding in other working groups	Elective	2 - 6	Written report
A 6 Introduction to new working area	Elective	6 - 24	Module examination depending on module
A 7 Temporary embedding in enterprises outside the university	Elective	2 - 6	Written report
A 8 Additional module „Specific knowledge“	Elective	3 - 6	Module examination depending on module

Offers on company courses, summer courses from other graduate schools, summer courses within the framework of the European education and networking initiatives can be credited for modules A-2, A-6, A-7 and A-8. Crucial for the recognition in the PhD programme is the duration of the course and a proof of participation.

The Examination Committee may, on request, recognize more credits from the module A 8 “Extending and Improving Specialised Knowledge”

**Table 2): Modules related to the field “Communication and imparting of knowledge”**

Module Title	Module Type	Credits	Module Examination
B 1 Congress	Elective	1 - 10	Paper or poster presentation

<b>Module Title</b>	<b>Module Type</b>	<b>Credits</b>	<b>Module Examination</b>
B 2 Scientific publishing	Elective	1 - 6	Scientific article
B 3 Special topics in communication and imparting of knowledge	Elective	6 - 10	depending on module
B 4 Motivation and imparting of knowledge	Elective	1 - 12	Written report
B 5 Additional module in	Elective	3 - 6	Examination depending on module

**Table 3): Modules related to the field “Interdisciplinary competences”**

<b>Module Title</b>	<b>Module Type</b>	<b>Credits</b>	<b>Module Examination</b>
C 1 Transferable skills and management skills	Elective	2 - 12	Examination depending on module
C 1 - 1 Foundation of an enterprise	Elective	2	Written examination (90 min) or development of a business plan
C 2 Mentoring	Elective	6	Assessment of practical exercises and/or Oral examination (30 mins.) or written examination (2 hrs.) and/or seminar presentation and/or report
C 3 Additional interdisciplinary module	Elective	3 - 6	Examination depending on module

**Relating to § 6 Examination Committee:**

Paragraph 1: The examination committee consists of members of Faculty V “Mathematics and Sciences” of Carl von Ossietzky University Oldenburg as well as of the Centre of Interface Science.

### Appendix 3: Particularities of the graduate course “Environmental Sciences and Biodiversity”

#### Relating to § 5 Paragraph 2:

**Table 1): Modules related to the field “Extending and Improving Specialised knowledge”**

At least one module from the module offers A 1 and A 2 is to be completed.

Module Title	Module Type	Credits	Module Examination
A 1 Summer school / congress / workshop	Compul- sory	3, 6	Oral report and/or report and/or discussion of the poster and/or assessment of a trial presentation
A 2 Lab visit abroad/field work	Elective	6 - 9	Oral or written report
A 3 Special techniques in „Environmental Sciences and Biodiversity“	Elective	3 - 9	Oral or written report or written examination
A 4 International Colloquium	Elective	3	Participation and discussion contributions
A 5 Subject-related colloquium	Compul- sory	3	Participation and/or seminar presentation
A 6 Additional module „Subject- specific knowledge“	Elective	3 - 6	Module examination depending on module

The Examination Committee may, on request, recognize more credits from the module A 6 “Extending and Improving Specialised Knowledge”.

**Table 2): Modules related to the field “Communication and imparting of knowledge”**

Module Title	Module Type	Credits	Module Examination
B 1 Didactics /supervision of students	Elective	6	Development of an experimental set-up <i>and/or</i> didactic conception in the respective special field <i>and/or</i>
B 2 PhD forum	Compul- sory	3	Organization and participation and seminar paper
B 3 Advanced presentation techniques	Elective	3	Oral report <i>and/or</i> assessment of a poster <i>and/or</i> assessment of a trial
B 4 Additional module „Communication“	Elective	3 - 6	Module examination depending on module

The Examination Committee may, on request, recognize more credits from the module B 4 “Communication and Imparting of Knowledge”.

**Table 3): Modules related to the field “Interdisciplinary Competences”**

Module Title	Module Type	Credits	Module Examination
C 1 Scientific publishing	Elective	6	Peer-reviewed manuscript (handed-in to an international journal)
C 2 Transferable skills/career development	Elective	3	Participation
C 3 Good scientific practice	Compulsory	0,5	Participation
C 4 Scientific writing	Compulsory	2	Concept of a publication
C 5 Fundraising /project management	Elective	2	Concept of a project application
C 6 Mentoring	Elective	6	Participation
C 7 Additional module „Transferable Skills”	Elective	3 - 6	Module examination depending on module

The Examination Committee may, on request, recognize more credits from the module C 7 “Interdisciplinary Competences”.

**Relating to § 6 Examination Committee:**

Paragraph 2: The examination committee reports to Faculty V for Mathematics and Natural Science at the Carl von Ossietzky University Oldenburg and the institutes with an environmental focus. and to the Research Centre “Neurosensory Sciences”. The examination committee consists of members of Faculty V and other academic institutions of the university that have an environmental focus.

## Appendix 4: Particularities of the structured Ph.D. programme “Renewable Energy”

### Relating to § 5 Paragraph 1:

The structured PhD program "Renewable Energy" has a total of 30 credit points. At the request of the doctoral candidates external events from the period of the promotion are recognized for the structured PhD program. The application must include title, scope, and proof of the event.

### Relating to § 5 Paragraph 2:

#### Table 1): Modules related to the field “Extending and Improving Specialised knowledge”

The modules A 1 and A 2 are compulsory. The module A 2 can be selected twice.

Module Title	Module Type	Credits	Module Examination
A 1 Methodology of scientific working and research	Compul- sory	6	Participation and presentation in 2 seminars
A 2 International summer school/workshop/conference	Compul- sory	3	Poster or presentation and report or presentation in working group
A 3 Research stay	Elective	3 - 9	Presentation and/or report and confirmation from the research institute
A 4 Interdisciplinary experts seminar	Elective	3	Participation and/or presentation of own research
A 5 Subject-oriented techniques/knowledge Lecture, labs and seminars from Master level courses in other research-related fields can also be chosen.	Elective	3	Report and/or oral examination (30 min.) or written examination (2 hrs.) or report with presentation
A 6 Colloquia	Elective	3	Participation and/or presentation of own research
A 7 Additional module „Specific knowledge”	Elective	3 - 6	Report and/or oral examination (30 min.) or written examination (2 hrs.) and/or seminar presentation

The Examination Committee may, on request, recognize more credits from the module A 7 “Extending and Improving Specialised Knowledge”.

**Table 2): Modules related to the field “Communication and Imparting of Knowledge”**

<b>Module Title</b>	<b>Module Type</b>	<b>Credits</b>	<b>Module Examination</b>
B 1 Didactics and communication	Elective	6	Report or lecture
B 2 Doctorates and master students forum	Elective	3	Organisation and presentation
B 3 Advanced presentation techniques	Elective	3	Presentation or poster
B 4 Intercultural communication/gender competence	Elective	3	Presentation
B 5 Language courses	Elective	3	Participation
B 6 Additional module „Communication”	Elective	3 - 6	Report and/or oral examination (30 min.) or written examination (2 hrs.) and/or seminar presentation

The Examination Committee may, on request, recognize more credits from the module B 6 “Communication and Imparting of Knowledge”.

**Table 3): Modules related to the field “Interdisciplinary Competences”**

<b>Module Title</b>	<b>Module Type</b>	<b>Credits</b>	<b>Module Examination</b>
C 1 Steps to scientific publishing	Compul- sory	6	Manuscript handed-in for a conference or a journal
C 2 Management skills	Elective	3	Participation
C 3 Mentoring and career development	Elective	3 - 6	Participation
C 4 Additional module „Transferable Skills”	Elective	3 - 6	Report and/or oral examination (30 min.) or written examination (2 hrs.) and/or seminar presentation

The Examination Committee may, on request, recognize more credits from the module C 4 “Interdisciplinary Competences”.



## Annex 5: Certificate of Ph.D. Programme

### Carl von Ossietzky Universität Oldenburg Fakultät für Mathematik und Naturwissenschaften

#### Certificate

Ms / Mr. ....

born on: ..... in .....

has passed the examinations within the doctoral programme

.....

at Carl von Ossietzky University Oldenburg with the overall grade .....

The programme encompasses at least 30 credits. The following courses have been taken:

Module	Grade	Credits
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Oldenburg, .....

\_\_\_\_\_  
Dean of Faculty

\_\_\_\_\_  
Chairman of Examining Board

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Grades: excellent, very good, good, satisfactory, sufficient