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HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

# Examination Regulations

for

# Nature-Inspired Materials, B.Sc.

Rhine-Waal University of Applied Sciences
Dated 4 January 2017
(Official Notice 20/2018)

In the version produced by the Fourth Amending Statutes
Dated 27 January 2026
(Official Notice 14/2026)

Contents

## Section 1
## Scope

These examination regulations apply to the bachelor's degree programme Nature-Inspired Materials B.Sc., offered in English at the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences, and are valid in conjunction with the General Examination Regulations ("RPO") of Rhine-Waal University of Applied Sciences. They govern the full-time, seven-semester mode of study.

## Section 2
## Academic objectives; purpose of examination; degree awarded

(1) The bachelor's examination (*Bachelorprüfung*) forms the basis for the professionally qualifying nature of this bachelor's degree. The overall aims and objectives for this degree programme are outlined in Section 3 RPO. A strong command of English is key to success in this degree programme, as it provides the essential basis for the programme's continuous objective of expanding and honing students' professional language skills.

(2) The academic degree "Bachelor of Science", abbreviated as "B.Sc.", is awarded for successfully completing the bachelor's examination.

## Section 3
## Admission requirements

(1) General admission requirements are defined in Section 4 RPO.

(2) *Intentionally omitted.*

(3) Applicants are ineligible for admission if they have failed the final attempt at a mandatory examination in a previous degree programme that shared a significant overlap in content with this degree programme and was offered by a university that is subject to the Basic Law of the Federal Republic of Germany.

(4) Sufficient proficiency in English can be demonstrated by a recognised language certificate for level B2 of the CEFR (Common European Framework of Reference for Languages).

(5) Applicants are exempted from this language certificate requirement if they have acquired proficiency in English equivalent to level B2 while earning their university entrance qualification (*fachgebundene Hochschulreife; Fachhochschulreife*) at a German secondary school. This is the case for applicants who have successfully

completed at least seven years of English at a German secondary school and earned a final grade of at least “sufficient” (4.0 or better on the German grading scale).

(6) *Intentionally omitted.*

## Section 4
## Basic internship

Proof of completion of a basic internship within the meaning of Section 4 (3) RPO is not required.

## Section 5
## Programme structure; Volume of instruction hours; Progression of studies

(1) The total volume of instruction for this degree programme is 116 credit hours (CH, or SWS in German).

(2) The modules of this degree programme comprise a total of 210 credits in accordance with the ECTS framework defined in Section 6 (5) RPO.

(3) *Intentionally omitted.*

(4) Additional information about the breakdown of this degree programme and the type, form and scope of modules is available in the curriculum at the end of this document. Additional information about learning outcomes, qualification aims, contents and forms of examination can be found in the corresponding module guide.

(5) The specific prerequisites set forth in annex 2 apply with regard to registration for module examinations. At least 60 credits are required in order to register for the module “NIM Project”.

(6) *Intentionally omitted.*

(7) Students must commit to one of three focus fields. They must then complete the modules offered for the selected focus field, which amount to 18 credits. This binding choice of focus field occurs once a student registers for the first examination for a module in the focus field. Students are not permitted to change focus field. Furthermore, students are not permitted to select an additional focus field.

## Section 6
## Internship semester; study abroad semester

(1) Internship semester requirements are defined in Section 21 RPO. Support services for students seeking an internship as well as the option of an applied project at Rhine-Waal University of Applied Sciences in lieu of an internship (see Section 21 (4) sentence 2 and 3 RPO) are excluded for this degree programme in accordance with Section 21 (4) sentence 4 RPO.

(2) The study abroad semester is governed by Section 22 RPO. Deviating from Section 22 (5) and (7) RPO, the following conditions also apply to study abroad semesters. Students planning a study abroad semester must complete modules/courses worth a minimum of 20 credits or an equivalent share of the full-time study load of the host university. The study abroad semester can only be recognised in full if at least 20 credits (or the full-time equivalent) were successfully obtained and this is confirmed by an official certificate from the host university. Students who earn fewer than the minimum of 20 credits (or equivalent), but at least 15 credits (or equivalent), must earn at least 5 additional credits at Rhine-Waal University of Applied Sciences through an additional module to make up for the difference and receive full recognition for the study abroad semester. The study abroad semester is considered failed if fewer than 15 credits were obtained.

(3) *Intentionally omitted.*

(4) Students planning a study abroad semester must conclude with the designated faculty advisor (see module guide) a learning agreement that clearly defines the modules they intend to complete at the host university.

(5) Students who are unable to adhere to their learning agreement for reasons beyond their control must notify the Examination Board without delay to amend their learning agreement accordingly. If students fail to notify the Examination Board properly, in justified cases it can still decide whether to accept credits from modules or courses that were not defined in the learning agreement.

## Section 7
## Scope of examinations

(1) The time allotted for a written examination depends on the corresponding number of credits. As a rule, 30 minutes are allotted for each credit point, with the total duration not exceeding two hours.

(2) An oral examination generally requires between 20 and 60 minutes.

(3) Assignments, term papers or projects should generally not exceed 10,000 words (approx. 30 pages, DIN A4).

## Section 8
## Scope and form of the thesis

(1) The main text portion of the thesis should generally be between 15,000 words (approx. 50 pages, DIN A4) and 25,000 words (approx. 70 pages, DIN A4) in length. The thesis may also be supplemented with other media, provided the use of said media as additional documentation is appropriate and helpful within the context of the assigned task. In this case, the length of the text portion of the thesis may deviate from the aforementioned minimum requirement.

(2) The thesis can also be submitted as group work if each student's individual contribution fulfils the requirements set forth in Section 23 (1) RPO and is clearly distinguishable (and thus assessable) thanks to clear and distinct separation by sections, page numbers or other criteria.

## Section 9
## Admission to the thesis and colloquium

(1) In addition to the requirements for admission to the thesis defined under Section 24 (1) no. 3 RPO, students must also have earned at least 183 credits.

(2) In addition to the requirements for admission to the colloquium defined under Section 27 (2) no. 3 RPO, students must also have earned at least 207 credits.

## Section 10
## Credit values for the thesis and colloquium

(1) Twelve credits are awarded for passing the bachelor's thesis.

(2) Three credits are awarded for passing the colloquium.

## Section 11
## Conferral of the bachelor's degree

The academic degree specified in Section 2 (2) is officially conferred upon issuing of the bachelor's degree certificate defined in Section 30 (1) RPO.

## Section 12
## Entry into force and expiry

(1) These examination regulations will enter into force on the day after publication of the German-language original in the Official Notices of Rhine-Waal University of Applied Sciences. They apply to students who first enrol in Nature-Inspired Materials, B.Sc. at the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences in or after winter semester 2025-26.

(2) Students who enrolled in the bachelor's degree programme Biomaterials Science before winter semester 2025-26 may continue their studies according to the examination regulations dated 4 January 2017 (Official Notice 20/2018), in the version produced by the Second Amending Statutes from 15 November 2022 (Official Notice 15/2023), until no later than 28 February 2029. The examination regulations from 4 January 2017 (Official Notice 20/2018), in the version produced by the Second Amending Statutes from 15 November 2022 (Official Notice 15/2023), will expire on 1 March 2029.

(3) Students currently studying under the examination regulations dated 4 January 2017 (Official Notice 20/2018), in the version produced by the Second Amending Statutes from 15 November 2022 (Official Notice 15/2023), may submit a written request to the Examination Board to switch to the present examination regulations. The Examination Board is responsible for all credit recognition decisions for modules and examinations completed under previous examination regulations. Upon expiry of the examination regulations from 4 January 2017 (Official Notice 20/2018), in the version produced by the Second Amending Statutes from 15 November 2022 (Official Notice 15/2023), any students studying thereunder will officially and automatically continue their studies under the present examination regulations.

*Note: These examination regulations entered into force in their present version on 16 May 2026.*

## Anhang 1: Studienverlaufsplan

| Modul-code | Modulname | CP | SWS | V | Ü | S | P | Pro | Bewertungsform | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Testat | Benotet |
| SEMESTER 1 | | | | | | | | | | |
| 2601 | Mathematics 1 | 6 | 6 | 4 | 2 | | | | | X |
| 2602 | Chemistry of Materials | 6 | 4 | | | | 4 | | | X |
| 2603 | Physics and Error Statistics | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2604 | Project Management | 3 | 2 | 1 | 1 | | | | X | |
| 2605 | Information Competence and Scientific Working | 3 | 2 | 1 | 1 | | | | X | |
| 2404 | Fundamentals of Business and Management | 6 | 4 | 2 | 2 | | | | | X |
| SEMESTER 2 | | | | | | | | | | |
| 2606 | Mathematics 2 | 6 | 6 | 4 | 2 | | | | | X |
| 2607 | Organic Chemistry | 6 | 4 | 2 | | | 2 | | | X |
| 2608 | Programming | 6 | 4 | 2 | | | 2 | | X | X |
| 2438 | Metallic Materials and Testing | 6 | 4 | 2 | | | 2 | | | X |
| 2609 | Material Analysis | 6 | 4 | 2 | 1 | | 1 | | | X |
| SEMESTER 3 | | | | | | | | | | |
| 2440 | Non-metallic Materials | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2610 | Chemistry of Biopolymers | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2611 | Biochemistry | 6 | 4 | 2 | | | 2 | | | X |
| 2612 | Physical Chemistry | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2409 | Personal and Social Competence | 6 | 4 | | | 4 | | | X | |
| SEMESTER 4 | | | | | | | | | | |
| 2613 | FEM and Materials Simulation | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2614 | Corrosion and Surface Chemistry | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2615 | Materials Technology | 6 | 4 | 3 | 1 | | | | | X |
| 2616 | Cell Biology and Microbiology | 6 | 4 | 2 | 1 | | 1 | | | X |
| | *Fokus (1)* | 6 | 4 | | | | | | | X |
| SEMESTER 5 | | | | | | | | | | |
| 2448 | Sustainability, Quality and Business Process Management | 6 | 4 | 3 | 1 | | | | | X |
| 2617 | Biocompatible Materials | 6 | 4 | 2 | | | 2 | | | X |
| 2618 | Recycling and Ecology of Materials | 6 | 4 | 2 | | | 2 | | | X |
| | *Fokus (2)* | 6 | 4 | | | | | | | X |
| | *Fokus (3)* | 6 | 4 | | | | | | | X |
| SEMESTER 6 | | | | | | | | | | |
| 2619 | NIM-Project | 5 | 4 | | | | | 4 | | X |
| | *Wahlpflichtmodul 1* | 5 | 4 | | | | | | | X |
| | *Wahlpflichtmodul 2* | 5 | 4 | | | | | | | X |
| 2620 | Internship / Semester Abroad | 15 | | | | | | | X | |
| SEMESTER 7 | | | | | | | | | | |
| 2620 | Internship / Semester Abroad | 15 | | | | | | | X | |
| 2621 | Bachelor Thesis | 12 | | | | | | | | X |
| 2622 | Colloquium | 3 | | | | | | | | X |
| | $\Sigma$ | 210 | 116 | | | | | | | |

| Modul-code | Modulname | CP | SWS | V | Ü | S | P | Pro | Bewertungsform | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Testat | Benotet |
| | FOKUSFELDER | | | | | | | | | |
| | MATERIAL TECHNOLOGY | | | | | | | | | |
| 2446 | Manufacturing Technology and Factory Equipment | 6 | 4 | 3 | 1 | | | | | X |
| 2623 | Material Testing and Failure Analysis | 6 | 4 | 2 | | | 2 | | | X |
| 2624 | Inorganic and Composite Materials | 6 | 4 | 2 | | | 2 | | | X |
| | MANAGEMENT | | | | | | | | | |
| 2447 | Accounting | 6 | 4 | 2 | 2 | | | | | X |
| 2634 | General Management | 6 | 4 | 2 | | | 2 | | X | X |
| 2456 | Technology and Innovation Management | 6 | 4 | 2 | | | 2 | | | X |
| | BIOCHEMISTRY | | | | | | | | | |
| 2625 | Biotechnology and Biodegradable Materials | 6 | 4 | 4 | | | | | | X |
| 2626 | Supramolecular Chemistry and Materials | 6 | 4 | 2 | 1 | | 1 | | | X |
| 2627 | Smart Functional Materials | 6 | 4 | 2 | | | 2 | | | X |
| | WAHLPFLICHTMODULE | | | | | | | | | |
| 2628 | Research-Project | 5 | 4 | | | | | 4 | | X |
| 2629 | Nanomaterials | 5 | 4 | 2 | 1 | | 1 | | | X |
| 2630 | Materials Inspired by Nature | 5 | 4 | 2 | 1 | | 1 | | | X |
| 2631 | Medical Devices | 5 | 4 | 2 | | | 2 | | | X |
| 2632 | Numerical Mathematics | 5 | 4 | 2 | 2 | | | | | X |
| 2633 | Foreign Language | 5 | 4 | | | | | | X | |
| 2699 | Module from any Bachelor Study Course HSRW | 5 | | | | | | | | |

**Erläuterungen**

* Zum Modul 2620 Internship / Semester Abroad: Wenn die Variante „Internship“ gewählt wird, dauert diese 20 Wochen. Wenn die Variante „Semester Abroad“ gewählt wird, ist ein Studium für ein vollständiges Semester an einer ausländischen Hochschule vorgesehen.

** Die Fakultät behält sich das Recht vor, sowohl eine Mindestteilnehmerzahl für das Zustandekommen eines Wahlpflichtmoduls als auch eine Maximalteilnehmerzahl festzulegen.

**Abkürzungen**

CP = Kreditpunkte (Credit points) gemäß European Credit Transfer and Accumulation System (ECTS)

SWS = Semesterwochenstunden

V = Vorlesung

Ü = Übung

S = Seminar

P = Praktikum

Pro = Projekt

## Anhang 2: Modulvoraussetzungen zu § 5 Absatz 5

| FOLGEMODULE: Modul ↓ \ Voraussetzung → | *Highschool mathematics* | *Highschool Chemistry* | 2404 Fund. of Busin. & Mgmt. | 2409 Pers. & Social Comp. | 2438 Metallic Mat. & Testing | 2440 Non-metallic Materials | 2447 Accounting | 2601 Mathematics 1 | 2602 Chemistry of Materials | 2603 Physics & Error Stat. | 2604 Project Management | 2606 Mathematics 2 | 2607 Organic Chemistry | 2608 Programming | 2609 Material Analysis | 2611 Biochemistry | 2612 Physical Chemistry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2438 Metallic Mat. & Testing | | | | | | | | | O | | | | | | | | |
| 2440 Non-metallic Materials | | | | | | | | | O | | | | O | | | | |
| 2446 Manuf. Techn. & F. E. | | | | | | | | | | | X | | | | | | |
| 2448 Sust., Q. & B. P. Mgmt. | | | X | | | | | | | | | | | | | | |
| 2601 Mathematics 1 | O | | | | | | | | | | | | | | | | |
| 2606 Mathematics 2 | | | | | | | | O | | | | | | | | | |
| 2607 Organic Chemistry | | O | | | | | | | O | | | | | | | | |
| 2608 Programming | | | | | | | | | | O | | | | | | | |
| 2609 Material Analysis | | | | | | | | | O | | | | | | | | |
| 2610 Chemistry of Biopolym. | | | | | | | | | X | | | | O | | | | |
| 2611 Biochemistry | | | | | | | | | X | | | | O | | | | |
| 2612 Physical Chemistry | | | | | | | | X | | X | | O | | | | | |
| 2613 FEM & Materials Sim. | | | | | | | | O | | O | | X | | X | | | |
| 2614 Corr. & Surf. Chem. | | | | | X | | | | | | | | | | | | O |
| 2615 Materials Technology | | | | | X | O | | | | X | | | | | O | | |
| 2617 Biocomp. Materials | | | | | X | X | | | | | | | O | | | X | |
| 2618 Recycl. & E. of Mater. | | | | | X | O | | | | | | | | | O | | |
| 2623 Material Test. & Fail. A. | | | | | O | O | | | | | | | | | | | |
| 2624 Inorgan. & Comp. Mat. | | | | | O | X | | | | | | | | | | | |
| 2625 Biotechn. & Biodegr. M. | | | | | | X | | | | | | | | | O | | |
| 2627 Smart Functional Mat. | | | | | O | O | | | | | | | X | | | | X |
| 2632 Numerical Mathematics | | | | | | | | X | | | | X | | | | | |
| 2634 General Management | | | | | | | X | | | | | | | | | | |

**Erläuterungen**

O = empfohlene Voraussetzung
X = obligatorische Voraussetzung