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# Examination Regulations

for

## Biomaterials Science B.Sc.

Faculty of Technology and Bionics  
Rhine-Waal University of Applied Sciences

Dated 4 January 2017  
(Official Notice 20/2018)

As amended by the  
Second amending statutes  
Dated 15 November 2022  
(Official Notice 15/2023)

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## **Section 1**

### **Scope**

These examination regulations apply to the undergraduate degree programme Biomaterials Science B.Sc., offered in English by 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) This degree programme concludes with the bachelor’s examination, which forms the basis for the professionally qualifying nature of the degree. The overall aims and objectives for this degree programme are outlined in Section 3 RPO. A strong command of the English language is key to achieving success in this degree programme, as it provides the essential basis for the continuous goal of expanding and honing students’ technical language and communication 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) A “related or comparable programme of study” within the meaning of Section 4 (6) RPO is defined as any bachelor’s or German *Diplom* degree programme at a university or university of applied sciences in Germany whose content can be predominately attributed to materials science.

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

(5) Exempted from this language certificate requirement are applicants who have acquired English language proficiency equivalent to level B2 over the course of earning their university entrance qualification [*Hochschulreife*] at a secondary school in Germany. This is considered the case when an applicant has successfully completed at least seven years of English at a German secondary school and earned a final cumulative mark for English of at least “sufficient” (4.0 or better on the German grading scale).

(6) The admissions process and requirements for non-EU international applicants are set forth in the Entrance Examination Regulations for Biomaterials Science B.Sc. at Rhine-Waal University of Applied Sciences from 24 March 2014 (Official Notices 10/2014).

## **Section 4**

### **Basic internship**

(1) The basic eight-week internship as defined by Section 4 (3) RPO should be completed at an external company, public office or other organisation that and familiarise students with questions and matters relating to materials engineering, general engineering, business organisation and business economics.

(2) The requirements for the aforementioned focus areas in the basic internship are set forth in the Internship Regulations for Biomaterials Science B.Sc. of the Faculty of Technology and Bionics at Rhine-Waal University of Applied Sciences.

## **Section 5**

### **Programme structure; volume of instruction hours; progression of studies**

(1) The total volume of instruction for this degree programme is 134 semester hours (SWS).

(2) The modules of this degree programme comprise a total sum of 210 credits according to 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 study and examination plan at the end of this document. Additional information about learning outcomes, qualification aims, contents and forms of examination is available in the corresponding module guide, which is available for viewing in the faculty's central office.

(5) Progression in this degree programme is limited by the following thresholds:

(a) In order to register for examinations scheduled for the fourth semester or higher, students must have achieved at least 53 credits from modules scheduled for the first two semesters of study in accordance with the applicable study and examination plan. This requirement does not apply to the elective module Foreign Language.

(b) In order to register for examinations scheduled for the fifth semester or higher, students must have achieved at least 63 credits from modules scheduled for the first two semesters of study in accordance with the applicable study and examination plan. This requirement does not apply to the elective module Foreign Language.

(c) The requirements for admission to the internship semester / semester abroad are unaffected by these thresholds.

(6) For the elective module Foreign Language, non-native speakers of German should register for a German course. Native speakers of German may register for any other language course offered.

## **Section 6**

### **Internship semester; semester abroad**

(1) Providing support with students' search for an internship (Section 21 (4) sentence 1 RPO) as well as the option of an applied project at the University instead of an internship (Section 21 (4) sentence 2 and 3 RPO) are excluded for this degree programme in accordance with Section 21 (4) sentence 4 RPO.

(2) Deviating from Section 22 (5) and (7) RPO, the following additional requirements apply to semesters abroad. Students planning a semester abroad must obtain a minimum of 30 credits (or

the full-time equivalent of the host university). The semester abroad can only be recognised in full if at least 30 credits (or the full-time equivalent) have been earned and this has been verified by an official certificate issued by the host university. Students who have earned fewer than the planned 30 credits, but at least 15 credits, must complete additional modules at Rhine-Waal University of Applied Sciences to make up for the difference and receive full credit (30 credits) for the semester abroad.

(3) The semester abroad is considered failed if fewer than 15 credits were obtained.

(4) Students planning a semester abroad must conclude a learning agreement with the faculty advisor designated in the module guide, in which the modules they intend to complete at the host university are clearly defined.

(5) Students who are unable to adhere to their learning agreement for reasons out of their control must report their circumstances to the Examination Board without delay to arrange a new learning agreement. If students fail to report changes to their learning agreement, the Examination Board will decide whether to accept credits earned in modules or courses which were not previously agreed upon in the learning agreement.

## **Section 7**

### **Scope of examinations**

(1) The time allotted for a written examination depends on the number of obtainable credits. As a rule, 30 minutes are allotted for every one credit, for a total duration up to, but not exceeding, two hours.

(2) An oral examination generally lasts between 30 and 45 minutes.

(3) Assignments, term papers or projects should generally not exceed 10,000 words (or 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 (or approx. 50 pages, DIN A4) and 25,000 words (or approx. 70 pages, DIN A4) in length. The thesis may also be supplemented with other media as well, provided their use 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 delimitation 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 obtained at least 175 credits.

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

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

- (1) Twelve credits are awarded for passing the undergraduate thesis.
- (2) Three credits are awarded for passing the colloquium.

**Section 11**  
**Awarding of the bachelor's degree**

The bachelor's 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**

- (1) These examination regulations will enter into force on the day after publication in the Official Notices (*Amtliche Bekanntmachungen*) of Rhine-Waal University of Applied Sciences. They apply to students who first enrolled in Biomaterials Science B.Sc. of the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences in or after winter semester 2017-18.
- (2) Students who first enrolled in Biomaterials Science B.Sc. before winter semester 2017-18 may continue their studies according to the Examination Regulations dated 29 August 2013 (Official Notices 03/2013) until 28 February 2022 at the latest.
- (3) Students currently studying according to the Examination Regulations dated 29 August 2013 may submit a written request to the Examination Board to switch to the Examination Regulations defined herein. The Examination Board is responsible for all credit recognition decisions for modules and examinations completed under previous examination regulations.

Note: *This amended version of the examination regulations entered into force on 16 March 2023.*

# Annex 1

Curriculum BMS		HPW	Type						Examination form		CP	HPW						
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1	SS2	WS3	SS4	WS5	SS6	WS7
<b>1<sup>st</sup> Semester</b>																		
2000	Introductory Mathematics	8	5			3					x	8	8					
2003	Physics	4	2			1	1		x	x	5	4						
2005	Inorganic Chemistry	4	2			1	1			x	5	4						
2011	Programming	4	2				2		x	x	5	4						
2014	Cross-Cultural Management and Creativity	4	2			2			x		5	4						
2100	Introduction to Biomaterials Science	3	2		1				x		3	3						
<b>2<sup>nd</sup> Semester</b>																		
2001	Applied Mathematics	8	5			3				x	7	8						
2004	Advanced Physics	4	2			1	1		x	x	5	4						
2006	Organic Chemistry	4	2			1	1			x	5	4						
2103	Physical Chemistry	4	2			1	1			x	5	4						
2106	Metallic Materials and Testing	4	2				2			x	5	4						
2110	Material Analysis	4	2				2			x	5	4						
<b>3<sup>rd</sup> Semester</b>																		
2008	Statics and Strengths of Materials	4	2			2				x	5		4					
2013	Business Economics and Project Management	4	3				1		x		5		4					
2101	Cell Biology and Microbiology	4	2				2			x	5		4					
2104	Chemistry of Biopolymers	4	2			1	1			x	5		4					
2107	Non-metallic Materials	4	2			1	1			x	5		4					
2112	Colloids and Rheology	4	2			1	1			x	5		4					
<b>4<sup>th</sup> Semester</b>																		
2102	Biochemistry	4	2				2			x	5			4				
2105	Biotechnology and biodegradable Materials	4	4							x	5			4				
2109	Materials Technology	4	4							x	5			4				
2111	Applied Materials and Corrosion	4	2			1	1			x	5			4				
<b>Focus Field (see catalogue individual subjects: Focus Field Subjects)</b>																		
	Focus Field Subject 1	4									5			4				
	Focus Field Subject 2	4									5			4				
<b>5<sup>th</sup> Semester</b>																		
2015	Group Project	1						1	x		5				1			
2113	Tailored Materials and Surfaces	4	2			1	1			x	5			4				
2114	Biocompatible Materials	4	2			1	1			x	5			4				
2006	FEM and Simulation Methods	4	2			2				x	5			4				
<b>Focus Field (see catalogue individual subjects: Focus Field Subjects)</b>																		
	Focus Field Subject 3	4									5			4				
	Focus Field Subject 4	4									5			4				
<b>6<sup>th</sup> Semester</b>																		
2016	Internship / Semester abroad								x		30							
<b>7<sup>th</sup> Semester</b>																		
2017	Bachelor Thesis									x	12							
2018	Colloquium									x	3							
2511	Technology and Quality Management	4	2				2			x	5				4			
2512	Entrepreneurship	2						2	x		2				2			
<b>Elective (see catalogue individual subjects: Electives)</b>																		
		3									5				3			
<b>Overview</b>																		
		133	V	SL	S	Ü	Pra	Pro	Attestation	graded	210	27	28	24	24	21	9	
	HPW								Examination form		CP	WS1	SS2	WS3	SS4	WS5	SS6	WS7

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Catalogue Individual Subjects BMS		HPW	Type						Examination form		CP	HPW					
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1	SS2	WS3	SS4	WS5	SS6
<b>Focus Field Subjects **/**/**/**/**/**</b>																	
2002	Numerical Mathematics	4	3			1				x	5				4		
2021	Modul from any other study course HSRW										5						
2116	Inorganic and Composite Materials	4	2				2			x	5			4			
2117	Technical Investment Planning	4	2				2		x		5			4			
2118	Materials inspired by Nature	4	2			1	1			x	5			4			
2119	Medical Devices	4	2				2			x	5			4			
2120	Recycling and Ecology of Materials	4	2				2			x	5			4			
2121	Material Testing and Failure Analysis	4	2				2			x	5			4			
2122	Nanomaterials	4	2			1	1			x	5			4			
2123	Materials Simulation	4	2			2				x	5			4			
2124	Biological Reactions to Materials	4	2			1	1			x	5			4			
<b>Electives</b>																	
2019	Scientific Methods (Block or online)	4	2			2				x	5					4	
2020	Foreign Language									x	5						
2021	Module from any other Bachelor study course HSRW									x	5						

### Explanations / Conditions

\* Die Fakultät behält sich das Recht vor, sowohl eine Mindestteilnehmerzahl für das Zustandekommen eines Faches im Fokusfeld / Wahlbereich als auch eine Maximalteilnehmerzahl festzulegen. Die Möglichkeit des Erreichens der vorgeschriebenen Kreditpunkanzahl aus dem Vertiefungsfeld bleibt unberührt. / \* The faculty reserves the right to determine a minimum and a maximum number of participants for offering a subject in the focus fields / electives. The possibility to obtain the required number of credit points remains unaffected.

\*\* Aus dem Wahlbereich können mit dem Einverständnis des Prüfungsausschusses der Fakultät Technologie und Bionik auch Fächer mit einem Gesamtumfang von 5 Kreditpunkten aus dem gesamten Bachelor-Studienangebot der Hochschule Rhein Waal gewählt werden / As elective a maximum of 5 CP can be chosen with the consent of the examination committee of the faculty Technology and Bionics from any Bachelor study programme at the Rhine-Waal University of Applied Science.

\*\*\* Die Fakultät Technologie und Bionik behält sich das Recht vor, das Fächerangebot im Wahlbereich zu ändern / The faculty Technology and Bionics reserves the right to change the catalogue of electives.

\*\*\*\* Aufgrund von stundenplantechnischen Randbedingungen ist nicht auszuschließen, dass Fächer verschiedener Fokusfelder sowie Fächer des Wahlbereichs zeitgleich angeboten werden / Due to time tabling constraints subjects from different focus fields and electives may be offered concurrently.

### Abbreviations

HPW Semesterwochenstunden / hours per week  
 CP Kreditpunkte / credit points  
 V Vorlesung / lecture  
 SL Seminaristische Vorlesung / seminar lecture  
 S Seminar / seminar  
 Ü Übung / exercise  
 Pra Praktikum / practical work  
 Pro Projekt / project  
 WSx Wintersemester / winter semester  
 SSx Sommersemester / summer semester