HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

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 from 10 June 2020
(Official Notice 13/2020)

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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 standard, seven-semester mode of study (full-time study) as well as the nine-semester, dual-vocational mode of study (dual study).

Section 2
Academic objectives; purpose of examination; degree awarded

(1) The bachelor's examination forms the basis for this professionally-qualifying degree. The overall aims and objectives for this degree programme are outlined in Section 3 RPO. A strong command of the English language is essential to success in this degree programme, as it is a necessary prerequisite for the overarching goal of consolidating and expanding students' technical language and communication skills.

(2) The academic degree "Bachelor of Science", abbreviated as "B.Sc.", is awarded upon successful completion of the bachelor's examination.

Section 3
Admission requirements

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

(2) Admission to the dual study programme requires proof of a valid and relevant apprenticeship contract with a German company.

(3) A "related or comparable programme of study" within the meaning of Section 4 (6) RPO is defined as any undergraduate (bachelor's or German 'Diplom') degree programme at a university or university of applied sciences in Germany whose content largely and predominately falls under materials science.

(4) Sufficient proficiency in English can be demonstrated by submitting a valid and recognised language certificate equivalent to CEFR level B2 (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 of at least "sufficient" (4.0 or better on the German grading scale) for the subject.

(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 science, 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; progression of studies

(1) The total volume of instruction for this degree programme is 134 SWS (combined hours per week for all lecture periods in the standard study duration).

(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) On-the-job vocational training is an integrated part of the dual study programme and occurs concurrently over the course of the first four semester of study. Both the vocational training position and the company offering it must relate to the student's field of study. The faculty is responsible for judging the relevance of a proposed dual study arrangement. In the "dual" phase of study, the contents of the first two semesters for full-time students are instead taught over four semesters. During this initial period, students attend two days of lectures at the University and spend the remaining three days in the workplace. The dual phase usually concludes before the fifth semester with a comprehensive examination (in German) at the regional Chamber of Industry and Commerce or Chamber of Trades.

(4) Additional information about how this degree programme is organised and the type, form and scope of modules can be found in the recommended study and examination plan (full-time) in Annex 1 or the recommended dual study and examination plan (dual study) in Annex 2. Additional information about learning outcomes, qualification aims, contents and forms of examination can be found 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) sent. 1 RPO) as well as the option of an applied project at the University instead of an internship (Section 21 (4) sent. 2 and 3 RPO) are excluded for this degree programme in accordance with Section 21 (4) sent. 4 RPO.

(2) Deviating from Section 22 (5) and (7) RPO, the following additional requirements apply to semesters abroad. Students going abroad must plan for at least 30 credits worth of courses (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. If a student earns fewer than the planned 30 credits, but more than 15, then he or she must complete additional modules at Rhine-Waal University of Applied Sciences in order to compensate for the difference and receive full credit for the semester abroad.

(3) Students who earn fewer than 15 credits will fail the semester abroad.

(4) Students planning on going abroad must define in a learning agreement the modules and courses they wish to complete at the host university together with a qualified faculty supervisor.

(5) If students are unable to adhere to their learning agreement for reasons out of their control, then they must report this 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 is appropriate and helpful as additional documentation 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 bachelor's thesis can also be admitted as group work if each student's individual contribution fulfils the requirements in Section 23 (1) RPO and is clearly distinguishable – and thus assessable – due to clear and distinct identification by section, 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 bachelor's 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 with the issuing of the bachelor's degree certificate referred to in Section 30(1) RPO.

Section 12
Entry into force

(1) These examination regulations shall enter into force on the day after their publication in the Official Notices 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 decisions regarding the transfer of credits for previously completed modules and examinations.

Note: These examination regulations entered into force on 10 July 2020.

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
1st Semester																		
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						
2nd Semester																		
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					
3rd Semester																		
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				
4th Semester																		
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			
	Focus Field (see catalogue individual subjects: Focus Field Subjects)																	
	Focus Field Subject 1	4									5				4			
	Focus Field Subject 2	4									5				4			
5th Semester																		
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		
2906	FEM and Simulation Methods	4	2			**2**				x	5					4		
	Focus Field (see catalogue individual subjects: Focus Field Subjects)																	
	Focus Field Subject 3	4									5					4		
	Focus Field Subject 4	4									5					4		
6th Semester																		
2016	Internship / Semester abroad								x		30							
7th Semester																		
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
	Elective (see catalogue individual subjects: Electives)	3									5							3
Overview		**133**	**V**	**SL**	**S**	**Ü**	**Pra**	**Pro**	**Attestation**	**graded**	**210**	**27**	**28**	**24**	**24**	**21**		**9**
		HPW	**Type**						**Examination form**		**CP**	**WS1**	**SS2**	**WS3**	**SS4**	**WS5**	**SS6**	**WS7**
															HPW			
			58	**0**	**1**	**20**	**24**	**3**										

Catalogue Individual Subjects BMS		HPW	Type						Examination form		CP	HPW						
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1	SS2	WS3	SS4	WS5	SS6	WS7
Focus Field Subjects *//***/**** **																		
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		
Electives																		
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	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 Kreditpunktanzahl 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

Annex 2

Curriculum BMS dual Form		HPW	Type						Examination form		CP	HPW								
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1a	WS1b	SS2a	SS2b	WS3	SS4	WS5	SS6	WS7
1st Semester																				
2000	Introductory Mathematics	8	5			3				x	8	8								
2005	Inorganic Chemistry	4	2			1	1			x	5	4								
2100	Introduction to Biomaterials Science	3	2		1				x		3	3								
2nd Semester																				
2001	Applied Mathematics	8	5			3				x	7			8						
2006	Organic Chemistry	4	2			1	1			x	5			4						
2103	Physical Chemistry	4	2			1	1			x	5			4						
3rd Semester																				
2003	Physics	4	2			1	1		x	x	5		4							
2011	Programming	4	2				2		x	x	5		4							
2014	Cross-Cultural Management and Creativity	4	2			2			x		5		4							
4th Semester																				
2004	Advanced Physics	4	2			1	1		x	x	5				4					
2106	Metallic Materials and Testing	4	2				2			x	5				4					
2110	Material Analysis	4	2				2			x	5				4					
5th Semester																				
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				
6th Semester																				
2102	Biochemistry	4	2				2			x	5						4			
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	Focus Field Subject 1	4									5						4			
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7th Semester																				
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		
2906	FEM and Simulation Methods	4	2			**2**				x	5							4		
	Focus Field (see catalogue individual subjects: Focus Field Subjects)																			
	Focus Field Subject 3	4									5							4		
	Focus Field Subject 4	4									5							4		
8th Semester																				
2016	Internship / Semester abroad								x		30									
9th Semester																				
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
	Elective (see catalogue individual subjects: Electives)	3									5									3
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																HPW				

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2020	Foreign Language								x		5									
2021	Module from any other Bachelor study course HSRW								x	x	5									

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Pro Projekt / project
WSx Wintersemester / winter semester
SSx Sommersemester / summer semester