Prüfungs- und Studienordnung (Examination and Study Regulations) for the Master's Degree Course Bioeconomy at the University of Greifswald

From 18 March 2022

Amendments:

- § 6 as well as the sample study plan and module descriptions amended by Article 4 of the Statutes on the Amendment and Cancellation of Modules Provided by the Faculty of Law and Economics in Degree Courses Belonging to Other Faculties of 14 September 2023 (made public and accessible to all members of the university on 22 September 2023)

Further information:

- The Statutes on the Amendment and Cancellation of Modules Provided by the Faculty of Law and Economics in Degree Courses Belonging to Other Faculties of 14 September 2023 entered into force on 1 October 2023.

Based on § 2(1) in conjunction with § 38(1) and § 39(1) of the Act on Higher Education Institutions in the State of Mecklenburg-Vorpommern (*Landeshochschulgesetz* - LHG M-V (State Higher Education Act)), in the version announced on 25 January 2011 (Law and Ordinance Gazette of Mecklenburg-Vorpommern (GVOBl. M-V p. 18)), last amended by the act of 21 June 2021 (GVOBl. M-V p. 1018), the University of Greifswald hereby passes the following Examination and Study Regulations for the international master's degree course 'Bioeconomy' as statute:

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List of Abbreviations

CA	Confirmation of attendance for a course with attendance requirement
CE	Coursework essay
CM	Compulsory module
CSR	Case-study report
CW	Coursework
D	Duration in semesters
DE	Defence

ECTS	Credits according to the European Credit Transfer System
EM	Elective module
EX	Exercises
L	Lecture
MD	Master's dissertation
OE	Oral examination (with duration)
P	Protocol
PC	Practical course
PD	Presentation and discussion
PE	Practical exercises
PI	Proof of internship
PR	Practical report
Pr	Presentation
RED	Regular examination date (semester)
S	Seminar
SWS	Contact hours per week
TSE	Type and scope of examination
WE	Written examination (with duration)
WL	Required workload in hours
*	Additional symbol if an exam or piece of non-assessed coursework is not given a mark, e.g. presentation Pr*

§ 1
Scope of Application

These Examination and Study Regulations govern the course content, course organisation and examination procedure in the master's degree course in 'Bioeconomy'. The General Examination Regulations of the University of Greifswald (*Rahmenprüfungsordnung* – hereinafter RPO) of 18 March 2021 (made public and accessible to all members of the University on 15 April 2021), as amended from time to time, shall apply on a supplementary basis.

§ 2
Study Goals

The international master's degree course leads to the professional qualification 'Master of Science'. The main aim of the degree is to convey fundamental aspects of bioeconomy in coastal and rural regions with a focus on the states bordering the Baltic Sea. In the field of natural sciences, teaching focuses on molecular biotechnology. Furthermore, students are taught about relevant topics related to marine biotechnology, including new usage concepts for plant-based biomass from rural areas. The inter- and transdisciplinary training are complemented by teaching contents from subject areas in the fields of business studies, economics, the humanities and social sciences. The degree course aims to convey both the principles of a bio-based sustainable economy and central bio-based value chains, as well as the basic principles of decision-making from a business administration and economics perspective. Based on practical examples, students learn about requirements for founding and managing enterprises, innovations, commercial exploitation and sustainability, as well as the required background knowledge on relevant legal provisions and business policies. A case study interdisciplinary report, an internship and the master's dissertation prepare students for work on further research questions as well as for a broad spectrum of professional careers in universities, research institutes, public authorities, commercial companies and organisations. Graduates are also eligible for acceptance to a doctoral programme.

§ 3
Admission and Admission Requirements

(1) Studies in this degree course may only be commenced in the winter semester.

(2) The admission requirements for the master's degree course are:
1. an undergraduate degree from a subject-relevant degree course – for example, biochemistry, biology, pharmacy, geography, business administration, economics, agriculture and forestry, or similar subjects, as well as
2. proven English language skills at level B2 of the 'Common European Framework of Reference for Languages' or alternatively, proof of at least seven years of English lessons at school.

The examination board decides on matters pertaining to number 1 of this sub-section.

§ 4
Structure of the Degree

(1) The master's course can be completed with the degree ‘Master of Science’ in four semesters (the standard length of study).

(2) Proper completion of the course requires that students obtain 120 ECTS. The total workload required to successfully complete the course equates to 3600 hours. The course comprises the core modules (48 ECTS), elective modules (42 ECTS) and the master’s dissertation including defence (30 ECTS). Students have to complement the respective contact time with an appropriate amount of studying on their own. The lecturers for each subject will provide information in due time about how this independent study time can best be used.

(3) Compulsory modules are required and convey the basic principles, content and methods of the subject. The compulsory modules “Personal Profile” I and II allow students to specialise.

(4) Elective modules convey more in-depth content and skills in the areas of specialisation. They are chosen by students and offer individual opportunities for acquiring special qualifications in additional basic subjects that have a meaningful connection to the content of the degree course.

(5) The degree course is completed with the master's dissertation including defence (§ 9).

(6) While the students retain the right to independently design the temporal and organisational course of their studies, the study plan shown in the Appendix (sample study plan) is recommended.

§ 5
Range and Types of Classes

(1) The course content is taught in lectures, exercise practicals, seminars and student projects as well as in research practicals, internships and the case study.

1. Lectures serve to systematically present a subject matter and are mainly taught in the form of a presentation.
2. In exercises, students are introduced to practical scientific activities and are supported in independently applying the knowledge gained. Exercises convey basic methods of academic work in the relevant subject areas and support the in-depth exploration of the teaching content.
3. Seminars serve to apply general content from a subject to specific problems or to independently learn about current research trends. They aim to introduce students to specialisation areas. In seminars, students actively contribute by presenting on a topic based on relevant literature or practice independent academic work by completing essays or written assignments and engaging in dialogue with the lecturers and discussions with one another.
4. The “Case Study Interdisciplinary Report” in the third subject semester is characterised by practical exercises in which students work in an interdisciplinary manner on academic research questions. In this format, students from various subject

areas typically work together on interdisciplinary topics from the natural and social sciences. The work serves to expand practical skills and support students in independently handling academic tasks. Selected bioeconomic processes are chosen as examples to look at with regard to their interdisciplinary, technical laboratory or process engineering aspects, how they relate to business and the economy, and what their contribution is to regional development and sustainability.

5. In the internship, current scientific or business questions are worked on in the context of the bioeconomy. In doing so, students gain insights into practice as they spend a minimum of eight weeks doing research at a firm offering internships or at a higher education institution or research institute in Germany or abroad. This provides students with professional orientation for potential future professions in their subject area.

(2) Lecturers decide on the language of instruction for courses, whereby most courses are offered in English but some in German.

§ 6
Modules

(1) In the master's degree course, compulsory modules with a total of 48 ECTS must be completed:

ID	Compulsory Modules	Contact hrs./week (SWS)	ECTS	WL	D	RED	TSE	CW
CM 01	Bioeconomy and Regional Development	4	6	180	1	1	Pr (20 min.)	P* + CA*
CM 02	Personal Profile I							
	a. Basics of Business Administration	6	6	180	1	1	WE (60 min.)	
	b. Introduction to Economics	3	4	120	1	1	WE (60 min.)	
	c. Basics of Biology and Biochemistry I	4	6	180	2	2	WE (90 min.)/ OE (30 min.)	

CM 03	Personal Profile II a. Marketing b. Microeconomic Theory c. Basics of Biology and Biochemistry II	34 3	6 8 6	180 240 180	11 1	22 2	WE (60 min.) WE (90 min.) WE (90 min.)/ OE (30 min.)	
CM 04	Biotechnology	4	6	180	1	3	WE (60 min.)/ OE (30 min.)	
CM 05	Entrepreneurship / Practical Aspects of Founding a Company	3	6	180	1	3	CE	
CM 06	Case Study Interdisciplinary Report		12	360	1	3	CSR + PD	
CM 07	Internship		6	360	1	3		PI*

(2) In the compulsory modules CM 02 ‘Personal Profile I’ and P 03 ‘Personal Profile II’, students select one of three possible areas (a, b or c) depending on their previous knowledge: students with a natural science background choose a (business administration) or b (economics), while students with a business or economics background choose c (basics of biology and biochemistry).

(3) Additionally, elective modules with a total of 42 ECTS must be completed. Elective modules that are completed in excess of 42 ECTS are considered additional courses and the marks are not included in the overall mark.

ID	Modules	Contact hrs./week (SWS)	ECTS	WL	D	RED	TSE	CW
EM 01	Biotechnology I	4	6	180	2	1/2	2 WE (60 min.)	
EM 02	Biotechnology II	4	6	180	2	2	WE (60 min.)/OE (30 min.)	
EM 03	Proteomics and Applied Microbiology	4	6	180	1	3	WE (90 min.)	
EM 04	Microbiology	4	6	180	1	3	WE (90 min.)	

EM 05	Plant Physiology	4	6	180	1	2	WE (90 min.)	
EM 06	Structural Analysis of Biological Macromolecules	8	12	360	2	2	WE (90 min.)/ OE (30 min.)	CA*, Pr*
EM 07	Protein Structure and Protein-Protein Interactions	7	6	250	1	2	WE (90 min.)/ OE (30 min.)	PR*; CA*
EM 08	Bioactive Molecules of Nature	4	6	180	1	2	WE (90 min.)/ OE (30 min.)	Pr*
EM 09	Mathematics and Statistics for Biosciences	4	6	180	1	3	WE* (90 min.)	
EM 10	Economic Geography	4	6	180	1	3	WE (60 min.)	PE*, CA*
EM 11	Rural Regions	4	6	180	1	3	Pr (20 min.)	P*, CA*
EM 12	Perspectives of Regional Development	4	6	180	1	2	Pr (20 min.)	PD*, 2 CA*
EM 13	Economic Valuation of Natural Resources	4	6	180	1	3	CE (25 p.)	
EM 14	Landscape Ecology and Economics	4	6	180	1	3	OE (25 min.)	
EM 15	Business Administration in the Healthcare Sector	4	6	180	2	3	WE (60 min.)	
EM 16	Hospital Controlling	4	6	180	2	3	WE (60 min.)	
EM 17	Project Management	4	6	180	1	2	CE (15-20 p.)	PD*
EM 18	Cost-Benefit Analysis	4	6	180	1	2	WE (90 min.)	
EM 19	Investment and Financing	3	6	180	1	2	WE (60 min.)	
EM 20	Internal Accounting	3	6	180	1	2	WE (60 min.)	
EM 21	External Accounting	3	6	180	1	3	WE (60 min.)	

EM 22	Regional Economics	4	6	180	2	2	WE (60 min.)	
EM 23	Marketing Management I	4	6	180	2	3	WE (120 min.)	
EM 24	Marketing Management II	4	6	180	2	3	WE (120 min.)	
EM 25	Case Studies in Strategic Management	2	6	180	1	2	PD	
EM 26	Site Planning	3	6	180	1	3	WE (60 min.)	
EM 27	Supply Chain Management	3	6	180	1	3	WE (60 min.)	

In a mandatory student advising session within a four-week period before the start of the lecture period, in coordination with the students, the chairperson of the examination board sets down the course schedule in writing and makes recommendations for combinations of elective modules and the use of a mobility window.

(4) To successfully complete the degree course, the master's dissertation (including the defence) must also be completed:

ID	Modules	Contact hrs./week (SWS)	ECTS	WL	D	RED	TSE	CW
MSc	Master's Dissertation		30	900	1	4	1 MD + 1 DE	

(5) Examinations that have already been taken in a completed bachelor's degree course, the content of which matches the main teaching contents and qualification objectives of modules of the master's degree course 'Bioeconomy', may not be taken again for the master's degree course, and instead, other elective modules and corresponding examination and/or marked coursework must be selected in agreement with the chairperson of the examination board for the degree course. Proof is provided with the transcript of records from the completed bachelor's course and must be coordinated with the chairperson of the examination board.

§ 7
Examinations and Non-Assessed Coursework

(1) The master's examination consists of the examinations taken for the individual modules during the course of studies and a master's dissertation with defence.

(2) Module examinations serve the purpose of determining whether, and to what extent, the student has achieved the qualification objectives. Besides examinations, in selected

modules non-assessed coursework must be completed according to § 17b RPO and are then a requirement for successful completion of the respective module.

(3) In coordination with the examiner, students may choose to conduct module examinations in English instead of in German. In the event that a course is taught in English, the examiner may conduct the examination in English. The decision regarding Sentences 1 and 2 shall be made at the beginning of the lecture period.

(4) If there is a choice of more than one type of examination in a module, the examiner must announce the type of examination required by the end of the first week of lectures. If no announcement is made, the first type listed shall be the type of examination.

(5) Modules consist of individually separable types of examination and non-assessed coursework.

The different types of examination are:

- Written examination, duration 40 to 120 minutes (marked; exception EM 09)
- Oral examination, duration 25 to 30 minutes (marked)
- Coursework essay/written assignment, scope of 15 to 25 pages (marked) if nothing different is set down in § 6; the writing-up period is eight weeks
- Presentation (duration approx. 20 minutes) and written exposition (20 to 25 pages) (marked) if nothing different is set down in § 6; the writing-up period is eight weeks
- Presentation with discussion lasting approx. 20 min. (marked)
- Case Study Report in accordance with sub-section (7) (marked)

Non-assessed coursework includes:

- Written report on a lecture, practical, experiment, excursion or similar, scope of 2 to 10 pages as determined by the lecturer in advance
- Presentation with discussion lasting approx. 20 min.
- Practical exercises, scope of between 1 and 6 subtasks as determined by the lecturer in advance
- Practical reports, scope of between 2 and 10 pages as determined by the lecturer in advance
- Attendance certificate in accordance with § 8
- Proof of internship (written confirmation from the firm offering the internship and an internship report on a form with a scope of 1-2 pages)

(6) Resits of written examinations can be taken as oral examinations. After the results of the written examination have been announced by the Examination Office, the examiner sets the form of the resit examination and notifies students. The oral examination is carried out by an examiner and one observer with knowledge of the subject area and lasts 30 minutes.

(7) The compulsory module CM 06 includes working on a Case Study Interdisciplinary Report (CSR) in groups of a maximum of three students. The scope of the report is a maximum of 15 pages per person for practical work in the laboratory or max. 30 pages per person for theoretical work, as well as a presentation of approximately 20 minutes with a subsequent discussion. Students have three months to work on the report. The topic of the Case Study Interdisciplinary Report is selected by the students; the chairperson of the examination board decides on the suitability of the suggested project

based on the requirements of the module handbook after hearing the responsible module teacher and in a timely manner before students start their work. The request must be addressed in writing to the chairperson of the examination board and is considered the official registration for the examination. The chairperson of the examination board informs the Examination Office of this registration. The overall mark of module CM 06 is calculated using the mark for the presentation and the mark of the Case Study Report. The weighting is 4:1 (Case Study Report : Presentation). The staff of the chairs primarily participating in the degree course are responsible for supervising and assessing the Case Study. Exceptions can be approved by the chairperson of the examination board upon request.

(8) Examinations are marked in accordance with § 6. In the event that a module examination consists of several exam components, in order to pass the module examination each individual partial examination must be awarded, as a minimum, the mark “sufficient” (4.0) or assessed as “passed”. Partial examinations that are not passed do not affect passed partial examinations.

§ 8
Compulsory Attendance

(1) In order to achieve the learning objective and receive credits for a module, regular participation in the courses specified in § 6 and in the module descriptions is required. This is considered to be fulfilled if no more than 20% of the course is missed.

(2) If the students state and prove in writing that they are or have been absent for longer periods for reasons beyond their control (illness, care of a close relative who is sick or otherwise in need of assistance, pregnancy, death of a close relative), the chairperson of the examination board shall decide whether the actual attendance time can still be counted as regular attendance. Depending on the amount of absence, it might be necessary for the student to complete appropriate additional coursework that is considered equivalent to regular participation. The nature of this work is determined by the lecturers in consultation with the chairperson of the examination board.

(3) For courses with compulsory attendance, an unmarked certificate of attendance (CA*) is a piece of non-assessed coursework issued in addition to any other examinations or non-assessed coursework.

§ 9
Master’s Dissertation

(1) The master’s dissertation is a scientific piece of work and should typically have a scope of 80 to 100 pages. The writing-up period is 840 hours over the course of six months. The dissertation is awarded 28 ECTS and the defence 2 ECTS.

(2) Once students have acquired at least 80 ECTS, they may request that a topic for the master’s dissertation be issued. The topic of the master’s dissertation must be issued no later than six months after completion of the last module examination. In the event that a student fails to apply for the topic or applies after the deadline, the writing-up period shall be shortened correspondingly.

(3) Besides the typewritten copies, the master's dissertation must also be submitted in electronic form. Students must also submit a declaration that confirms that an electronic copy of the dissertation may be made and saved to enable review with anti-plagiarism software.

(4) The defence comprises a presentation lasting up to 25 minutes and a discussion that should not last longer than 60 minutes. In a defence that may only be taken if the master's dissertation has been assessed with at least "sufficient" (4.0), students are to present the key findings of their work and defend these against objections brought up in the discussion. The two lecturers who assessed the master's dissertation assess the defence. If the defence is not passed, it may be repeated one time. If the defence is not passed the second time, the master's dissertation must also be repeated.

§ 10
Determination of the Overall Mark

(1) An overall mark is calculated for the master's examination. The overall mark is calculated from the marks of the module examinations for the compulsory modules CM 01, CM 02, CM 03, CM 04, CM 05 and CM 06, the marks of all elective modules up to 42 ECTS and the mark for the master's dissertation (including defence).

(2) The marks for all modules listed in sub-section (1) and the master's dissertation are weighted with their respective proportion of credits in the calculation of the overall mark.

§ 11
Degree

After passing the master's examination, the degree 'Master of Science' (abbreviated: M.Sc.) shall be conferred.

§ 12
Entry into Force

These Examination and Study Regulations enter into force on the day after they are made available to members of the university via publication on the website. They shall only apply to students enrolled from winter semester 2022/23 onwards.

Issued following the decision of the Senate's Study Committee of 9 March 2022, which was granted the authorisation to pass decisions with the Senate resolution of 20 May 2020, in accordance with § 81(7) LHG M-V and § 20(1) sentence 1 of the *Grundordnung* (Basic Regulations), and the approval of the Rector of 18 March 2022.

Greifswald, 18 March 2022

The Rector
of the University of Greifswald
University Professor Dr. Katharina Riedel

Notice: Made public and accessible to all members of the University on 11 July 2022.

Appendix A: Sample Study Plan

Abbreviations:

CA	Confirmation of attendance for a course with attendance requirement
CE	Coursework essay without presentation (15 to 20 pages, if no other stipulations made in § 6 and module description)
CM	Compulsory module
CSR	Case-study report (max. 15 pages for practical lab work, max. 30 pages for theoretical work)
CW	Coursework
D	Duration in semesters
DE	Defence
ECTS	Credits
EM	Elective module
EX	Exercises
L	Lecture
MD	Master's dissertation
OE	Oral examination (with duration)
P	Protocol (2 to 10 pages, to be defined in advance by lecturer)
PC	Practical course
PD	Presentation and discussion
PE	Practical exercises, scope of between 1 and 6 subtasks
PF	Portfolio exam, consisting of several assessment components, marked
PI	Proof of internship
PR	Practical report (2 to 10 pages, to be defined in advance by lecturer)
Pr	Presentation (§ 22(2) RPO with written assignment from 15 to 20 pages and presentation of approx. 20 minutes, if no other stipulations made in § 6 and module description)
PW	Project Work
RED	Regular examination date (semester)
S	Seminar
SWS	Contact hours per week
TSE	Type and scope of examination
WE	Written examination (with duration)
WL	Required workload in hours
*	Additional symbol if an exam or piece of non-assessed coursework is not given a mark, e.g. presentation Pr*

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
Compulsory Modules (48 credit points)										
CM 01	Bioeconomy and Regional Development	4	6	180	1	1				
CM 01.1	Bioeconomy and Regional Development (L)	2				1	CW: P*			
CM 01.2	Bioeconomy and Regional Development (S)	2				1	TSE: Pr (20 min.), CW: CA*			
CM 02	Personal Profile I									
CM 02a	a) Basics of Business Administration	6	6	180	1	1				
CM 02a.1	Introduction to Business Administration for Students on Degree Courses outside of Business Administration (L)	2				1				
CM 02a.2	Introduction to Business Administration for Students on Degree Courses outside of Business Administration (EX)	1				1				
CM 02a.3	HRM and Organisation (L)	2				1	TSE: 1 WE (60 min.)			
CM 02a.4	HRM and Organisation (EX)	2				1				
CM 02b	b) Introduction to Economics	3	4	120	1	1	TSE: 1 WE (160 min.)			
CM 02b.1	Introduction to Economics (L)	2								
CM 02b.2	Introduction to Economics (EX)	1								
CM 02c	c) Basics of Biology and Biochemistry I	4	6	180	2	2		TSE: 1 WE (90 min.)/1 OE (30 min.)		
P 02c.1	General Biology for Pharmacists: Cytology & Genetics (L)	2								
CM 02c.2	General Biology for Pharmacists: Microbiology (L)	2								
CM 03	Personal Profile II									
CM 03a	a) Marketing	3	6	180	1	2		TSE: 1 WE (60 min.)		

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
CM 03a.1	Introduction to Marketing (L)	2				2				
CM 03a.2	Introduction to Marketing (EX)	1				2				
CM 03b	b) Microeconomic Theory	4	8	240	1	2		TSE: 1 WE (90 min.)		
CM 03b.1	Microeconomic Theory (L)	3				2				
CM 03b.2	Microeconomic Theory (EX)	1				2				
CM 03c	c) Basics of Biology and Biochemistry II	3	6	180	1	2		TSE: 1 WE (90 min.)/1 OE (30 min.)		
CM 03c.1	General Biology for Pharmacists: Anatomy + Morphology (L)	2								
CM 03c.2	Basics of Biochemistry (L)	1								
CM 04	Biotechnology (semi-elective module)	4	6	180	1	3			TSE: 1 WE (60 min.)/OE (30 min.)	
CM 04.1	Biocatalysis or chosen course	2								
CM 04.2	Marine Biotechnology (L)	1								
CM 04.3	Molecular Biotechnology of Prokaryotes (L)	1								
CM 05	Entrepreneurship / Practical Aspects of Founding a Business	3	6	180	1	3			CE	
CM 05.1	Practical Aspects of Founding a Business (L)	2								
CM 05.2	Business Plan (EX)	1								
CM 06	Case Study Interdisciplinary Report		12	360	1	3			TSE: 1 CSR + 1 PD	
CM 07	Internship		6						CW: PI*	

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
Elective Modules (at least 42 credit points)										
EM 01	Biotechnology I	4	6	180	2	1/2				
EM 01.1	Biotechnology I (L)	2				1	TSE: 1 WE (60 min.)			
EM 01.2	Biochemistry and Molecular Biology I for Pharmacists (L)	1				2		TSE: 1 WE (60 min.)		
EM 01.3	Biochemistry and Molecular Biology II for Pharmacists (L)	1				2				
EM 02	Biotechnology II	4	6	180	2	2		TSE: 1 WE (60 min.)/OE (30 min.)		
EM 02.1	Biotechnology II (L)	2								
EM 02.2	Biotechnology III (L)	2								
EM 03	Proteomics and Applied Microbiology	4	6	180	1	3			TSE: 1 WE (90 min.)	
EM 03.1	Physiological Proteomics / Pathoproteomics (L)	2								
EM 03.2	Molecular Methods of Microbiology (L)	2								
EM 04	Microbiology	4	6	180	1	3				
EM 04.1	General and Specialised Microbiology (L)	4							TSE: 1 WE (90 min.)	
EM 05	Plant Physiology	4	6	180	1	2				
EM 05.1	Introduction to Plant Physiology (L)	4						TSE: 1 WE (90 min.)		
EM 06	Structural Analysis of Biological Macromolecules	8	12	360	2	2				
EM 06.1	Biocrystallography (L)	2						TSE: 1 WE (90 min.)/OE (30 min.)		
EM 06.2	Structural Analysis of Biological Macromolecules (EX)	6						CW: CA*; Pr*		
EM 07	Protein Structure and Protein-Protein Interactions	7	6	250	1	2				

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
EM 07.1	Protein Structure and Protein-Protein Interactions (L)	2						TSE: 1 WE (90 min.)/OE (30 min.)		
EM 07.2	Protein Structure and Protein-Protein Interactions (EX)	5						PR*; CA*		
EM 08	Bioactive Molecules of Nature	4	6	180	1	2		TSE: 1 WE (90 min.)/OE (30 min.) CW: 1 Pr*		
EM 08.1	Bioorganic Chemistry (L/S)	2								
EM 08.2	Bioactive Natural Products (L)	1								
EM 08.3	Recent Advances in Research on Bioactive Natural Compounds (L)	1								
EM 09	Mathematics and Statistics for Biosciences	4	6	180	1	3			TSE: 1 WE* (90 min.)	
EM 09.1	Mathematics / Statistics (L)	3								
EM 09.2	Mathematics / Statistics (EX)	1								
EM 10	Economic Geography	4	6	180	1	3				
EM 10.1	Economic Geography (L)	2							TSE: 1 WE (60 min.)	
EM 10.2	Economic Geography Reading Seminar (S)	2							CA*, PR*	
EM 11	Rural Regions	4	6	180	1	3				
EM 11.1	Rural Regions (L)	2							1 P*	
EM 11.2	Rural Regions (S)	2							1 Pr (20 min.), 1 CA*	
EM 12	Perspectives of Regional Development	4	6	180	1	2		TSE: 1 Pr (20 min.); CW: 1 PD*, 2 CA*		
EM 12.1	Regional Development in the Baltic Sea Region (S)	2								
EM 12.2	Global Perspectives on Regional Development (S)	2								

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
EM 13	Economic Valuation of Natural Resources	4	6	180	1	3			TSE: 1 CE (25 p.)	
EM 13.1	Economic Valuation of Natural Resources (S)	2								
EM 13.2	Project Work (PW)	2								
EM 14	Landscape Ecology and Economics	4	6	180	1	3			TSE: 1 OE (25 min.)	
EM 14.1	Principles of Landscape Ecology (L)	2								
EM 14.2	Nature Conservation Economics (L)	2								
EM 15	Business Administration in the Healthcare Sector	4	6	180	2	3			TSE: 1 WE (60 min.)	
EM 15.1	Health Care Management I (L)	2								
EM 15.2	Health Care Management III (L)	2								
EM 16	Hospital Controlling	4	6	180	2	3			TSE: 1 WE (60 min.)	
EM 16.1	Health Care Management II (L)	2								
EM 16.2	Health Care Management IV (L)	2								
EM 17	Project Management	4	6	180	1	2		TSE: CE (15-20 p.); CW: PD* (20 min.)		
EM 17.1	Project Management I – Theory (S)	2								
EM 17.2	Project Management II – Practical Application (S)	2								
EM 18	Cost Benefit Analysis	4	6	180	1	2		TSE: 1 WE (90 min.)		
EM 18.1	Cost Benefit Analysis (L)	2								
EM 18.2	Cost Benefit Analysis (EX)	2								
EM 19	Investment and Financing	3	6	180	1	2		TSE: 1 WE (60 min.)		
EM 19.1	Investment and Financing (L)	2								
EM 19.2	Investment and Financing (EX)	1								
EM 20	Internal Accounting	3	6	180	1	2		TSE: 1 WE (60 min.)		
EM 20.1	Internal Accounting (L)	2								

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
EM 20.2	Internal Accounting (EX)	1								
EM 21	External Accounting	3	6	180	2	2			TSE: 1 WE (60 min.)	
EM 21.1	External Accounting (L)	2								
EM 21.2	External Accounting (EX)	1								
EM 22	Regional Economics	4	6	180	2	2		TSE: 1 WE (60 min.)		
EM 22.1	Foreign Trade (L)	2								
EM 22.2	Regional Economics (L)	2								
EM 23	Marketing Management I	4	6	180	2	3			TSE: 1 WE (120 min.)	
EM 23.1	Measuring Marketing (L)	2								
EM 23.2	Price Policy (L)	2								
EM 24	Marketing Management II	4	6	180	2	3			TSE: 1 WE (120 min.)	
EM 24.1	Product Policy (L)	2								
EM 24.2	International Marketing (L)	2								
EM 25	Case Studies in Strategic Management	2	6	180	1	2		PD		
EM 25.1	Case Studies in Strategic Management (L)	1								
EM 25.2	Case Studies in Strategic Management (EX)	1								
EM 26	Site Planning	3	6	180	1	3			TSE: 1 WE (60 min.)	
EM 26.1	Site and Layout Planning (L)	2								
EM 26.2	Site and Layout Planning (EX)	1								
EM 27	Supply Chain Management	3	6	180	1	3			TSE: 1 WE (60 min.)	
EM 27.1	Supply Chain Management (L)	2								
EM 27.2	Supply Chain Management (EX)	1								

ID	Course (type)	Contact hrs./week (SWS)	ECTS	WL	D	RED	1st Semester	2nd Semester	3rd Semester	4th Semester
Master's Dissertation										
M1	Master's Dissertation		**30**	900	1	4				
M1.1	MSc Dissertation		28							MD
M1.2	Defence		2							DE

Appendix B: Module Descriptions

Compulsory Modules

<table>
<tr><th colspan="5">Compulsory Module Bioeconomy and Regional Development (CM 01)</th></tr>
<tr><td>Responsible</td><td colspan="4">Chair of Economic and Social Geography</td></tr>
<tr><td>Qualification objectives</td><td colspan="4">• Knowledge, in-depth discussion and ability to independently develop research approaches in the field of bioeconomy from a socio-technical perspective and its importance for regional transformation processes
• Ability to act and apply methods for scientific-analytical positions in science, business and politics at the interface between bioeconomy and regional development as well as transformation management</td></tr>
<tr><td>Module contents</td><td colspan="4">• <u>Bioeconomy and Regional Development</u> (lecture): Overview of the concept of bioeconomy and presentation of the perspectives of various disciplines on bioeconomy; introduction to the approach of socio-technical transformation and its application to bioeconomy; presentation of current research approaches on regional development; discussion of significance of bioeconomy for the transformation in various spatial contexts, differentiated view of regional transformation paths; in-depth discussion of strategic political options and management of bio-based transformation processes
• <u>Bioeconomy and Regional Development</u> (seminar): Independent analysis and critical assessment of various bio-based transformation paths from a socio-technical perspective; independent analysis and critical assessment of the potentials of bioeconomy for regional development in various spatial contexts; in-depth discussion of specific challenges for strategies of regional development based on the bioeconomy as well as possible solutions in the context of transformation management; one-day excursions can be part of the seminar</td></tr>
<tr><td rowspan="3">Classes</td><td></td><td>SWS</td><td>ECTS</td><td>Total workload</td></tr>
<tr><td>• Bioeconomy and Regional Development (L)
• Bioeconomy and Regional Development (S)</td><td>2
2</td><td>6</td><td>180 h</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="2">Assessment components</td><td colspan="4">Examination and/or marked coursework: Presentation (20 min.) with written assignment (10-15 pages (marked))</td></tr>
<tr><td colspan="4">Non-assessed coursework: unmarked protocol on the lecture (2-10 pages as stated by lecturer) (unmarked); attendance certificate in the seminar (unmarked)</td></tr>
<tr><td>On offer</td><td colspan="4">annually, in winter semester</td></tr>
<tr><td>Duration</td><td colspan="4">1 semester</td></tr>
<tr><td>Regular examination date</td><td colspan="4">1st semester</td></tr>
<tr><td>Requirements</td><td colspan="4">none</td></tr>
</table>

Can be selected for	-

Compulsory module "Personal Profile I" (CM 02)				
CM02 a "Basics of Business Administration"				
Responsible	Chair of General Business Administration: Organisation, HRM, and Innovation Management			
Qualification objectives	• Overview of basic issues in business administration, its specialist terminology, approaches for solving problems and context factors in business management decisions. • Overview of the key alternatives for organisational structures and the most important human resource tools; ability to assess which tools are best suited for various business situations.			
Module contents	• Introduction to Business Administration (lecture and exercises): what the subject is about, issues and methods from the entire scope of business administration; economic approaches, technical business terminology and methods; legal forms of businesses and corporate governance • Human Resources and Organisation (lecture and exercises): basics of organisational theory; basics of designing and coordinating organisational structure; basics of human resource management			
Classes		SWS	ECTS	Total workload
	• Introduction to Business Administration for Students on Degree Courses outside of Business Administration (L) • Introduction to Business Administration for Students on Degree Courses outside of Business Administration (EX) • Human Resources and Organisation (L) • Human Resources and Organisation (EX)	2 1 2 1	6	180
Assessment components	Examination and/or marked coursework: written exam 60 minutes (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	1st semester			
Requirements	none			

Can be selected for	B.A. Business Administration; B.Sc. Business Administration; B.Sc. Management and Law; M.Sc. Health Care Management; M.Sc. Bioeconomy

Compulsory module "Personal Profile I" (CM 02)				
CM02 b "Introduction to Economics"				
Responsible	Chair of General Economics: Growth, Structural Change and Trade			
Qualification objectives	• Students have acquired an understanding of economic concepts, basic questions and problems, and are familiar with economic principles and framework conditions and their influence on everyday life.			
Module contents	• Conceptual basics; basics of model analysis; basics of supply and demand; basics of markets and pricing; macroeconomic production output, prosperity, fairness, redistribution, basics of economic dynamics; economic policy objectives; basics of monetary policy			
Classes		SWS	ECTS	Total workload
	• Introduction to Economics (L) • Introduction to Economics (EX)	2 1	4	120 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	1st semester			
Requirements	none			
Can be selected for	B.A. Economics; B.Sc. Business Administration; B.Sc. Management and Law; B.Sc. Environmental Sciences; M.Sc. Health Care Management; M.Sc. Bioeconomy			

Compulsory module "Personal Profile I" (CM 02)	
CM02 c "Basics of Biology and Biochemistry I"	
Responsible	Chair of Pharmaceutical Biology and Chair of Pharmaceutical Biotechnology at the Institute of Pharmacy
Qualification objectives	• Basic knowledge of cytology and genetics • Basics of applied microbiology
Module contents	• General Biology for Pharmacists: Cytology and Genetics (lecture): Basics of cytology (eubacteria, eukaryotes); structure and function of cell walls or bio-membranes (chemistry and structure, membrane flow,

<table>
<tr><td></td><td colspan="4">physical properties: semi-permeability, membrane potential, cell contacts, transport mechanisms, signal transduction pathways); cell structures and their functions (cytosol, cell nucleus, nucleus equivalent, vacuoles, smooth and rough endoplasmic reticulum, dictyosomes, Golgi apparatus, storage vesicles, mitochondria, plastids, ribosomes, glyoxysomes, peroxisomes, lysosomes, cytoskeleton, flagella); basics of genetics including the molecular structure and functions of deoxyribonucleic acids (chromosomes) and ribonucleic acids, genetic code, transcription, gene regulation, splicing, translation, replication, mitosis, meiosis, meiotic systems, alternation of nuclear phases, alternation of generations, parasexual systems, changes in genetic information (mutations, mutation types (genomic, chromosomal and point mutation); transposable genetic elements; basics of molecular biology
• General Biology for Pharmacists: Microbiology (lecture): Basic characteristics of bacteria and archaea; structure of bacteria cells and Gram stains; growth and development of bacteria; bacteriophages; plasmids; resistance factors; bacteria relevant to biotechnology (Gram-negative bacteria: Escherichia coli, pseudomonads, cyanobacteria, and others / Gram-positive bacteria: Bacillus, Lactobacillus, Corynebacterium, Streptomyces, and others); symbioses; the human microbiome; probiotic bacteria; pathogenic bacteria and viruses</td></tr>
<tr><td>Classes</td><td>• General Biology for Pharmacists: Cytology and Genetics (L)
• General Biology for Pharmacists: Microbiology (L)</td><td>SWS
2
2</td><td>ECTS
3
3</td><td>Total workload
180 h</td></tr>
<tr><td>Assessment components</td><td colspan="4">Examination and/or marked coursework: written examination 90 min. or oral examination 30 min. (marked)</td></tr>
<tr><td></td><td colspan="4">Non-assessed coursework: -</td></tr>
<tr><td>On offer</td><td colspan="4">annually, in winter semester (cytology and genetics) and in summer semester (microbiology)</td></tr>
<tr><td>Duration</td><td colspan="4">2 semesters</td></tr>
<tr><td>Regular examination date</td><td colspan="4">2nd semester</td></tr>
<tr><td>Requirements</td><td colspan="4">none</td></tr>
<tr><td>Can be selected for</td><td colspan="4">Diplom Pharmacy</td></tr>
</table>

Compulsory module “Personal Profile II” (CM 03)	
CM03 a “Marketing”	
Responsible	Chair of General Business Administration: Marketing
Qualification objectives	• Students will be able to describe and evaluate the term “marketing” and related concepts and match them appropriately to business goals.

Module contents	• Basics of the marketing mix • Basics of market-oriented business management • Basics of marketing strategies

		SWS	ECTS	Total workload
Classes	• Introduction to Marketing (L) • Introduction to Marketing (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	none			
Can be selected for	B.A. Business Administration; B.Sc. Business Administration; B.Sc. Management and Law; M.Sc. Bioeconomy			

Compulsory module "Personal Profile II" (CM 03)				
CM03 b "Microeconomic Theory"				
Responsible	Chair of General Economics: Monetary Economics			
Qualification objectives	• Students have knowledge of basic microeconomic decision-making problems and their interdependencies in the market equilibrium. Students are able to explain and apply concepts and models of microeconomic theory, assess allocation and efficiency problems, apply acquired specialist knowledge to selected problems and analyse complex issues independently.			
Module contents	• The module deals primarily with the fundamentals of household and business decision-making, including general equilibrium, welfare economics and market failure.			
Classes	• Microeconomic Theory (L) • Microeconomic Theory (EX)	SWS 3 1	ECTS 8	Total workload 240 h
Assessment components	Examination and/or marked coursework: written examination 90 min. (marked)			

	Non-assessed coursework: -
On offer	annually, in summer semester
Duration	1 semester
Regular examination date	2nd semester
Requirements	Solid basic knowledge of economics and mathematics
Can be selected for	B.A. Economics; B.Sc. Business Administration; B.Sc. Geography; B.Sc. Mathematics; M.Sc. Bioeconomy

Compulsory module "Personal Profile II" (CM 03)				
CM03 c "Basics of Biology and Biochemistry II"				
Responsible	Chair of Pharmaceutical Biology and Chair of Pharmaceutical Biotechnology at the Institute of Pharmacy, Chair of Cellular Biochemistry and Metabolomics at the Institute of Biochemistry			
Qualification objectives	• Basic knowledge of the anatomy and morphology of plants • General knowledge of biochemistry			
Module contents	• <u>General Biology for Pharmacists: Anatomy and Morphology</u> (lecture): Basics of the structure, morphology and function of plants (cells, roots, stem, leaves, flowers, fruit, seeds including taxonomic characteristics) • <u>Basics of Biochemistry</u> (lecture): Structure of sugars and carbohydrate metabolism (glycolysis, gluconeogenesis, glycogen metabolism, alcoholic and lactic acid fermentation, citric acid cycle, glyoxylate cycle, respiratory chain); amino acids and protein metabolism; lipids and basics of lipid metabolism; enzymes and their structures and activity; ribozymes			
Classes		SWS	ECTS	Total workload
	• General Biology for Pharmacists: Anatomy and Morphology (L)	2	3	180 h
	• Basics of Biochemistry (L)	1	3	
Assessment components	Examination and/or marked coursework: written examination 90 min. or oral examination 30 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	none			

Can be selected for	*Diplom* Pharmacy

Compulsory module "Biotechnology" (CM 04)				
Responsible	Chair of Biotechnology and Enzyme Catalysis and Chair of Metabolic Biology and Metabolomics at the Institute of Biochemistry, Chair of Pharmaceutical Biotechnology at the Institute of Pharmacy			
Qualification objectives	• Basics of marine and bacterial biotechnology • Advanced knowledge of biotechnology • Knowledge of biocatalysis (students with a B.Sc.) or an alternative field of study as chosen by students in consultation with the Departmental Advisory Service			
Module contents	The module is made up of three classes. Students must take two of them: • Marine Biotechnology (lecture): Basics of marine biotechnology; marine compounds and determining their structures; marine symbioses and biofilms; obtaining and using marine polysaccharides; biotechnology of psychrophilic organisms; cyanobacteria and microalgae • Molecular Biotechnology of Prokaryotes (lecture): Biotechnology of extremophilic bacteria (thermophilic, psychrophilic, halophilic, acidophilic, alkaliphilic, magnetotactic and radioresistant bacteria); genetic libraries; *E. coli* & *Bacillus sp.* expression systems; fusion proteins (translation, protein stability, secretion, cleaning); designer bugs; sustainable industrial bioprocesses The third course, the lecture Biocatalysis, is compulsory for students with a B.Sc. in natural science subjects. • Biocatalysis (lecture): Basics / definition of biocatalysis; reactor and solution systems; enzyme resources; analytics (chiral, protein and reaction analysis); immobilisation; reaction control; cofactor recycling; detailed treatment of the enzymes relevant for biocatalysis (hydrolases, oxidoreductases, lyases, transferases, isomerases); cascades; industrial processes In close coordination with the Departmental Advisory Service, all other students select a course from another field of study from the module catalogue based on their previous background.			
Classes		SWS	ECTS	Total workload
	• Marine Biotechnology (L)	1	2	180 h
	• Molecular Biotechnology of Prokaryotes (L)	1	2	
	• Biocatalysis / Other (L)	2	2	
Assessment components	Examination and/or marked coursework: written examination 60 min. or oral examination 30 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			

Regular examination date	3rd semester
Requirements	B.Sc. degree
Can be selected for	*Diplom* Pharmacy; B.Sc. Biology; M.Sc. Biomathematics; M.Sc. Molecular Biology and Physiology; M.Sc. Biochemistry

Compulsory module "Entrepreneurship / Practical Aspects of Founding a Company" (CM 05)				
Responsible	Research Support Centre			
Qualification objectives	• Knowledge of background and process of founding a company • Knowledge of the structure and content of a business plan • Ability to develop a business concept from one's own ideas and create an appropriate business plan			
Module contents	• Practical Aspects of Founding a Business (lecture) and Business Plan (exercises): Entrepreneur personality, individual or team start-ups; creativity techniques and finding ideas; structure of the business plan; market analysis; business models; price calculation; patents and property rights; selection of legal form; marketing and sales; financing; pitch deck and pitch training			
Classes		SWS	ECTS	Total workload
	• Practical Aspects of Founding a Business (L) • Business Plan (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written assignment (business plan) (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	-			

Compulsory module "Case Study Interdisciplinary Report" (CM 06)	
Responsible	Chair of Economic and Social Geography and Chair of Aquatic Microbiology Depending on the selected topic, students will be supervised by one of the lecturers associated with the master's degree course in Bioeconomy. Topics are to be coordinated with the chairperson of the examination board.

Qualification objectives	• Independent familiarisation with a specialised topic • Independent execution of advanced experiments or application of methods of empirical economic and social research as well as evaluation/interpretation of the results obtained		
Module contents	• Independent work on an experimental or empirical business and social-science research topic from the master's degree course in Bioeconomy		
Classes	Group work on a topic area of the degree course	ECTS 12	Total workload 360 h
Assessment components	Examination and/or marked coursework: Submission of a case study report of max. 15 pages per person for practical work in the laboratory or max. 30 pages per person for written assignments in economics/business administration or the social sciences (marked); as well as a presentation of approx. 20 min. with subsequent discussion (marked).		
	Non-assessed coursework: -		
On offer	annually, in winter semester		
Duration	1 semester		
Regular examination date	3rd semester		
Requirements	Advanced subject knowledge of the topic being addressed		
Can be selected for	n/a		

Compulsory module Internship (CM 07)	
Responsible	The internship in companies, public authorities or research facilities in Germany or abroad must be organised by the students themselves and be approved by the chairperson of the examination board.
Qualification objectives	• Insights into possible future occupations and requirement profiles for holders of an M.Sc. in Bioeconomy • Independent work on tasks that have been transferred by the supervising institution • Insights into organisational, social and professional structures of the supervising institution
Module contents	The following aspects can be part of an internship: • Effective planning of workflows • Collaboration on work processes and fields of activity of the supervising institution • Production, monitoring and sales of biological, biomedical or pharmacological, biochemical, or agricultural products • Studies of applied biological processes under natural conditions

	• Concepts for regional development that take bioeconomy into consideration • Preparation and presentation of obtained results		
Classes		ECTS	Total workload
	• Completion of independent work tasks at an external institution and related follow-up work	6	360 h
Assessment components	Examination and/or marked coursework: -		
	Non-assessed coursework: Written confirmation of the performed tasks from the supervising institution (proof of internship) and complementary internship report (unmarked)		
On offer	annually, in both winter and summer semester		
Duration	8 weeks (preferably in the non-lecture period)		
Regular examination date	3rd semester		
Requirements	Recommended previous knowledge: Compulsory modules of the first and second semesters		
Can be selected for	n/a		

Module Master's Dissertation			
Responsible	The master's dissertation is completed on the topic of one of the compulsory or elective modules in the degree course Bioeconomy. Students may choose the supervisor from among all of the lecturers who teach in this field. The topic of the dissertation and the lecturers who are to assess the work must be approved by the chairperson of the examination board.		
Qualification objectives	• Acquisition of the ability to work independently on a given bioeconomy task of limited scope in the chosen project area. • Acquisition of the ability to present the results obtained in the form of a scientific piece of writing.		
Module contents	• Creation of a work plan • Literature study • Development of a methodological strategy to solve the assigned task • Implementation and application of appropriate methods of analysis • Discussion of the findings and placement within the theoretical context • Writing up of the master's dissertation • Oral presentation and discussion of the master's dissertation (defence)		
Classes		ECTS	Total workload
	• Independent scientific work at a chair selected by the student with a total writing-up period of 6 months	30	900 h

Assessment components	Writing up the master's dissertation and defence
On offer	permanently
Duration	1 semester
Regular examination date	4th semester
Requirements	Acquisition of at least 80 ECTS, including all compulsory modules
Can be selected for	n/a

Elective modules

Elective module "Biotechnology I" (EM 01)				
Responsible	Chair of Biotechnology and Enzyme Catalysis Chair of Pharmaceutical Biotechnology			
Qualification objectives	• Basic knowledge of biotechnology and knowledge of the most important processes in the production of biotechnological products • Basic knowledge of pharmaceutical biotechnology			
Module contents	• Biotechnology I (lecture): Reactor and fermenter types, carrying out fermentation (media, selection of microorganisms, cultivation, processing), products of primary metabolism (amino acids, citric acid, gluconic acid, lactic acid etc.), products of secondary metabolism (antibiotics such as penicillins, cephalosporins etc.), isolation and cleaning of proteins / enzymes • Biochemistry and Molecular Biology I for Pharmacists (lecture): Introduction to pharmaceutical biotechnology, biotechnological basics of fermentation processes, important production strains and cell cultures (requirements and genotyping optimisation), processes to produce antibiotics and proteins, enzymes used in treatment, therapeutic antibodies, gene pharming, stem cell / gene therapy • Biochemistry and Molecular Biology II for Pharmacists (lecture): Molecular basics of gene technology (transcription, gene regulation (epigenetics, RNA interference), translation), cloning strategies, sequencing techniques, biologics and biosimilars			
Classes		SWS	ECTS	Total workload
	• Biotechnology I (L)	2	2	180 h
	• Biochemistry and Molecular Biology I (L)	1	2	
	• Biochemistry and Molecular Biology II for Pharmacists (L)	1	2	
Assessment components	Examination and/or marked coursework: written examination 60 min. on the lecture Biotechnology I (marked); written examination 60 min. on lectures Biochemistry and Molecular Biology I + II for Pharmacists (marked)			

	Non-assessed coursework: -
On offer	annually, Biotechnology I and Biochemistry and Molecular Biology I for Pharmacists in winter semester, Biochemistry and Molecular Biology II for Pharmacists in summer semester
Duration	2 semesters
Regular examination date	2nd semester
Requirements	Required previous knowledge: for Biotechnology I: subject module biochemistry; for Biochemistry and Molecular Biology I + II: bachelor's degree in biochemistry, chemistry or biology, or 1st *Staatsexamen* (State Examination) in pharmacy
Can be selected for	*Diplom* Pharmacy; B.Sc. Biochemistry; M.Sc. Environmental Science; M.Sc. Molecular Biology and Physiology

Elective module "Biotechnology II" (EM 02)				
Responsible	Chair of Biotechnology and Enzyme Catalysis			
Qualification objectives	• Advanced knowledge of biotechnology			
Module contents	• Biotechnology II (lecture): Products of the secondary metabolism, antibiotics, therapeutics (e.g., insulins, fibrinolytics), methods of protein expression (microbial systems, cell-free protein biosynthesis), display technologies (phage display, surface display), biosensors, biosurfactants, bioenergy, CO2 fixation, plant biotechnology (basics, methods, applications) • Biotechnology III (lecture): Basics and methods of protein engineering, metabolic engineering / synthetic biology (basics, examples), modern methods (genome editing, computational design, artificial cells / minimal genome), CAZymes, ethics, patents			
Classes		SWS	ECTS	Total workload
	• Biotechnology II (L) • Biotechnology III (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. or oral examination 30 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, Biotechnology II in winter semester, Biotechnology III in summer semester			
Duration	2 semesters			
Regular examination date	2nd semester			
Requirements	Required previous knowledge: bachelor's degree in biochemistry, chemistry or biology			

Can be selected for	B.Sc. Biochemistry; M.Sc. Environmental Science; M.Sc. Molecular Biology and Physiology

Elective module "Proteomics and Applied Microbiology" (EM 03)				
Responsible	Chairs at the Institute of Microbiology			
Qualification objectives	• In-depth knowledge of molecular methods and their application in microbiological research • Advanced knowledge of functional genomics of bacteria with a focus on proteomics • In-depth knowledge of the analysis of microbial proteomics			
Module contents	• Molecular Methods of Microbiology (lecture): Fermentation, anaerobic cultivation of bacterial biofilms; molecular-genetic methods; electron microscopy and fluorescence and confocal laser scanning microscopy; next-generation sequencing; proteomics; chromatographic processes; fluorescence *in-situ* hybridisation; NanoSIMS and Raman spectroscopy • Physiological Proteomics / Pathoproteomics (lecture): Milestones of microbial proteomics; current applications of proteomics in microbial physiology, medical microbiology and microbial ecology; *in-situ* proteomics and metaproteomics			
Classes		SWS	ECTS	Total workload
	• Molecular Methods of Microbiology (L) • Physiological Proteomics / Pathoproteomics (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 90 min. on both lectures (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	Recommended previous knowledge from a bachelor's degree in the natural sciences			
Can be selected for	M.Sc. Molecular Biology and Physiology; M.Sc. Biochemistry			

Elective module "Microbiology" (EM 04)	
Responsible	Chair of Microbial Physiology and Molecular Biology at the Institute of Microbiology

Qualification objectives	• Basic knowledge of microbiology and microbiological systematics • Knowledge of cytology and growth of protozoa • Basics of the potential and dangers of microorganisms • Understanding of the basics of microbial metabolism			
Module contents	• General and Specialised Microbiology (lecture): Ultrastructure of prokaryotic cells (and viruses); microbial nutrition, cell division, growth and differentiation; principles of the systematics and evolution of microorganisms; principles of bacterial metabolism; principles of bacterial 'social behaviour'; principles of medical microbiology; principles of food microbiology and biotechnology			
Classes		SWS	ECTS	Total workload
	• General and Specialised Microbiology (L)	4	6	180 h
Assessment components	Examination and/or marked coursework: written examination 90 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	B.Sc. Biology; B.Sc. Human Biology; B.Sc. Environmental Science; M.Sc. Environmental Science			

Elective module "Plant Physiology" (EM 05)				
Responsible	Chair of Plant Physiology at the Institute of Botany and Landscape Ecology			
Qualification objectives	• Basics of metabolic and developmental physiology of plants • Understanding of the links between structure and function of plant tissue			
Module contents	• Introduction to Plant Physiology (lecture): Cytology (particularities of plant cells and their organelles); metabolic physiology (water balance, energy balance, photosynthesis, nutrient assimilation, symbioses); developmental physiology (phytohormones, effects of endogenous and exogenous factors); movement physiology; stress physiology (concept of stress, biotic and abiotic stresses)			
Classes		SWS	ECTS	Total workload
	• Introduction to Plant Physiology (L)	4	6	180 h

Assessment components	Examination and/or marked coursework: written examination 90 min. (marked)
	Non-assessed coursework: -
On offer	annually, in summer semester
Duration	1 semester
Regular examination date	2nd semester
Requirements	Recommended previous knowledge: successful completion of the compulsory module CM02 c "Basics of Biology and Biochemistry I" (lectures "Cytology & Genetics" and "General Biology for Pharmacists: Microbiology")
Can be selected for	M.Sc. Biochemistry; B.Sc. Biochemistry; M.Sc. Molecular Biology and Physiology

Elective module "Structural Analysis of Biological Macromolecules" (EM 06)				
Responsible	Chair of Synthetic and Structural Biochemistry			
Qualification objectives	• Knowledge of x-ray diffraction on crystals and applicability for examination of biological macromolecules • Targeted use of crystal structure analysis for biochemical research questions • Practical skills in handling equipment for x-ray diffraction • Skills for analysing and interpreting experimental data, also in comparison to other methods of molecular structural biology			
Module contents	• Biocrystallography (lecture): Protein crystallisation, x-ray sources, diffraction, data collection and analysis, phase problem, structure solution, calculation of electron density maps, model construction and refinement, representation and evaluation of a structure analysis; practical application of x-ray diffraction; comparative evaluation of biocrystallography with spectroscopic methods • Structural Analysis of Biological Macromolecules (exercises): Practical principles of certain devices, evaluation and assessment of the experiments			
Classes		SWS	ECTS	Total workload
	• Biocrystallography (L) • Structural Analysis of Biological Macromolecules (EX)	2 6	 12	 360 h
Assessment components	Examination and/or marked coursework: written examination (90 min.) or oral examination (30 min.) on the lecture and practical (marked)			
	Non-assessed coursework: presentation in the practical (unmarked); attendance certificate for practical (unmarked)			
On offer	annually, Biocrystallography in winter semester, Structural Analysis of Biological Macromolecules in summer semester			
Duration	2 semesters			

Regular examination date	2nd semester
Requirements	Required previous knowledge: basic knowledge of organic chemistry and biochemistry that corresponds to B.Sc. in biochemistry, chemistry, biology or equivalent degree; Please note, limited capacity: only limited number of places available for students who are not studying biochemistry
Can be selected for	M.Sc. Biochemistry

Elective module "Protein Structure and Protein-Protein Interactions" (EM 07)				
Responsible	Chair of Synthetic and Structural Biochemistry			
Qualification objectives	• In-depth understanding of structure-function relationships in proteins • In-depth theoretical and practical understanding of various biophysical methods to characterise proteins and of protein-protein interactions • Practical experience in planning and carrying out expression and cleaning protocols to produce recombinant proteins • Knowledge of how to present and document scientific findings both orally and in writing • Ability to transfer gained qualifications to other areas of biochemistry			
Module contents	▪ Protein Structure and Protein-Protein Interactions (lecture and exercises): Structure-function relationships in proteins; expression and cleaning of proteins; biophysical and biochemical analysis of protein-protein interactions; incorporation of non-natural amino acids in proteins; kinetic and thermodynamic characterisation of protein-protein interactions; using computer programmes to characterise and represent proteins			
Classes		SWS	ECTS	Total workload
	• Protein Structure and Protein-Protein Interactions (L) • Protein Structure and Protein-Protein Interactions (EX)	2 5	6	250 h
Assessment components	Examination and/or marked coursework: written examination 90 min. or an oral examination 30 min. (marked)			
	Non-assessed coursework: Practical report on the tasks performed in the practical course (unmarked); attendance certificate for the practical (unmarked)			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	Required previous knowledge: basic knowledge of organic chemistry and biochemistry that corresponds to B.Sc. in biochemistry, chemistry, biology or equivalent degree;			

	Please note, limited capacity: only limited number of places available for students who are not studying biochemistry
Can be selected for	M.Sc. Biochemistry

Elective module "Bioactive Molecules of Nature" (EM 08)				
Responsible	Chair of Bioorganic Chemistry and Chair of Cellular Biochemistry and Metabolomics at the Institute of Biochemistry			
Qualification objectives	• In-depth knowledge of metabolic biochemistry of primary and secondary natural products with a focus on bioactive molecules and their importance in sustainable bioeconomy • Knowledge on finding, isolating, characterising and further developing bioactive natural products • Mastering basic methods of structural elucidation of bioactive natural products using methods of instrumental (bio)analysis • Metabolic biochemistry of prokaryotic and eukaryotic organisms • Knowledge of the synthesis and functionalisation of biomolecules and their potential applications • Understanding of the development of synthetic models to investigate bioactive molecules • Knowledge of current developments in the biochemistry of natural bioactive molecules in the seminar based on current research findings (methods, strategies and applications) and current research fields in the chemistry and biochemistry of primary and secondary natural products (biosynthesis, structural elucidation)			
Module contents	▪ Bioactive Natural Products (lecture): Metabolic biochemistry of bioactive natural products and their importance for sustainable bioeconomy; structural elucidation of bioactive primary and secondary natural products; introduction to the analysis of the ecological importance of primary and secondary natural products ▪ Bioorganic Chemistry (lecture): Synthesis of DNA, RNA and peptides; chemical methods for the functionalisation of biomolecules; selected mechanisms of biomolecular reactions; non-covalent interactions, host-guest chemistry; functional RNA molecules in vivo and in vitro ▪ Recent Advances in Research on Bioactive Natural Compounds (literature seminar): Current aspects of the biochemistry of bioactive primary and secondary natural products; biochemical and ecological importance of primary and secondary natural products as well as new developments in the area of structural elucidation of natural products			
Classes		SWS	ECTS	Total workload
	• Bioactive Natural Products (L) • Recent Advances in Research on Bioactive Natural Compounds (S) • Bioorganic Chemistry (L/S)	1 1 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 90 min. or an oral examination 30 min. on the contents of the lectures (marked)			
	Non-assessed coursework: presentation in the seminar (unmarked)			
On offer	annually, in summer semester			

Duration	1 semester
Regular examination date	2nd semester
Requirements	Recommended previous knowledge: advanced knowledge of biochemistry; basic knowledge of organic chemistry
Can be selected for	M.Sc. Biochemistry

Elective module "Mathematics and Statistics for Biosciences" (EM 09)				
Responsible	Chairs of the Institute of Mathematics and Computer Science			
Qualification objectives	• Knowledge of probability theory, statistics and basics of mathematics			
Module contents	• Mathematics / Statistics (lecture + exercises): Introduction to the areas of probability theory, descriptive statistics and inductive statistics: - random experiment, concept of probability, conditional probability, Bayes' theorem, random variables and their distribution, location and dispersion parameters, selected distribution models of discrete and continuous random variables, independence of events and random variables - Nominal, ordinal and metric characteristics, relative frequency, characterisation of frequency distributions, contingency and correlation coefficients, regression - Law of large numbers and central limit theorem - Random sample and population: estimating parameters (estimation functions, estimation principles, point and interval estimates), testing statistical hypotheses (principle, examples of key test procedures, importance of level of significance, critical area and p-value) - Fundamentals of mathematics: equation systems, matrices, eigenvalues, Leslie matrix, partial derivatives			
Classes		SWS	ECTS	Total workload
	• Mathematics / Statistics (L) • Mathematics / Statistics (EX)	3 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 90 min. on the contents of the lecture (unmarked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	Recommended previous knowledge: basic knowledge of mathematics, representations of functions, vector algebra, differential and integral calculus			

Can be selected for	B.Sc. Biology; B.Sc. Human Biology

Elective module "Economic Geography" EM 10				
Responsible	Chair of Economic and Social Geography			
Qualification objectives	• Knowledge, in-depth discussion and ability to independently develop research approaches in the field of economic geography and the theoretical and conceptual fundamentals of regional development • Ability to act and apply methods for scientific-analytical activities in basic and applied research			
Module contents	• Economic Geography (lecture): Overview of the basic principles of location, mobility and regional growth and development theories; description of current research approaches in economic geography (e.g. evolutionary economic geography, institutional approaches of regional development, new economic geography); in-depth discussion of conceptual principles for selected areas of focus in the degree course (e.g. knowledge-based regional development, sustainable regional development, tourism and regional development, global transformation processes); transfer of economic-geographical concepts to applications in tourism research • Economic Geography Reading Seminar (seminar): In-depth discussion of theoretical-conceptual approaches from the respective lecture session using original literature; presentation and explanation of relevant articles by the students; discussion of strengths and weaknesses as well as possible empirical and regional-political areas of application for the respective approach; write-up of the topic in the form of an essay that includes discussion in the seminar			
Classes		SWS	ECTS	Total workload
	• Economic Geography (L) • Economic Geography Reading Seminar (S)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. on the contents of the lecture (marked)			
	Non-assessed coursework: Practical exercises (unmarked) and attendance certificate (unmarked) for seminar			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	M.Sc. Regional Development and Tourism			

Elective module "Rural Regions" (EM 11)				
Responsible	Chair of Human Geography			
Qualification objectives	• Knowledge, in-depth discussion and ability to independently develop theories and concepts of the geographies of rural regions under particular consideration of sustainable regional development • Ability to carry out and apply methods for scientific-analytical activities in the context of rural regions			
Module contents	• Rural Regions (lecture): Current research questions of rural regions; rural regions from a geographical perspective; dynamics of rural regions in Germany; sustainable development of rural regions; agricultural systems and the future of rural regions; players in regional development, designing rural regions; consumption in rural regions, tourism • Rural Regions (seminar): In-depth discussion of current research questions in rural regions; critical analysis and assessment of development processes in rural regions; in-depth discussion of specific challenges of rural regions and possible approaches to solutions; one-day excursions may be carried out in the context of the seminar			
Courses		SWS	ECTS	Total workload
	• Rural Regions (L) • Rural Regions (S)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: presentation (20 min.) with written assignment (marked)			
	Non-assessed coursework: protocol on the lecture (unmarked); attendance certificate for seminar (unmarked)			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	M.Sc. Regional Development and Tourism			

Elective module "Perspectives of Regional Development" (EM 12)	
Responsible	Chair of Economic and Social Geography
Qualification objectives	• Ability to apply theories and concepts of regional development to case studies in the Baltic Sea region and to cases that relate to global issues • Knowledge, in-depth discussion and ability to work independently and based on theories to understand regional contexts using examples from the Baltic Sea region and controversial topics of globalisation

	• Ability to act in the area of problem analysis and working on strategies for solutions and communication for various players and interest groups			
Module contents	• Regional Development in the Baltic Sea Region (seminar): Current relevant aspects of regional development based on the example of the Baltic Sea region; aspects that are of particular importance in this region (e.g. maritime economy, bioeconomy, transnational ties and cooperation) • Global Perspectives on Regional Development (seminar): Globalisation of the world's economy; international trade and direct investments; global value chains and production networks; regional effects of globalisation in countries with differing levels of development and in different types of regions; global transformation and sustainability; regional development in countries of the Global South			
Classes		SWS	ECTS	Total workload
	• Regional Development in the Baltic Sea Region (S) • Global Perspectives on Regional Development (S)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: presentation (approx. 20 min.) with written assignment in either of the seminars on offer (marked)			
	Non-assessed coursework: presentation and discussion in the other seminar (unmarked); attendance certificate in both seminars (unmarked)			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	none			
Can be selected for	M.Sc. Regional Development and Tourism			

Elective module "Economic Valuation of Natural Resources" (EM 13)	
Responsible	Chair of Economics and Landscape Economy
Qualification objectives	• Application of economic knowledge by means of a literature analysis and an assessment project • Critical treatment of scientific literature, gaining confidence in presentation style and written expression • Planning and confidently carrying out research work related to economic valuation of natural resources
Module contents	• Economic Valuation of Natural Resources (seminar): Presentation and discussion of academic texts on the project topic; preparation and work on the project for economic valuation • Project Work (project work): Work on an academic research question as part of a practical valuation project, including write-up

		SWS	ECTS	Total workload
Classes	• Economic Valuation of Natural Resources (S) • Project Work (PW)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written assignment (25 pages) on the course "Project work" (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	Recommended previous knowledge: Basic knowledge of economics; Please note: limited number of participants, attendance only permitted following approval from responsible module teacher			
Can be selected for	M.Sc. Landscape Ecology and Nature Conservation; B.Sc. Landscape Ecology and Nature Conservation; M.Sc. Regional Development and Tourism			

Elective module "Landscape Ecology and Economics" (EM 14)	
Responsible	Chair of Landscape Ecology and Ecosystem Dynamics at the Institute of Botany and Landscape Ecology
Qualification objectives	• Knowledge of current conceptual approaches in landscape ecology • Expansion of microeconomic knowledge and its application in relation to the economic valuation of natural and landscape resources • Assessment of all kinds of interventions into the landscape
Module contents	• Principles of Landscape Ecology (lecture): Basic concepts of landscape ecology; reductionism and emergence / holism and atomism; hierarchy and landscape units; the concept of the ecosystem; concepts of stability and resilience; self-organisation / self-regulation; evolution and dynamics of landscapes over space and time; landscape in conflicts of use • Economics of Conservation (lecture): Economics and the living environment; global strategies of nature and biodiversity conservation; markets and state interventions in nature and landscape conservation; public goods, common pool resources and managing natural resources; economics of species conservation and genetic diversity; economics of conservation areas; economic principles to value goods and services; agriculture, forestry and conservation; tourism, leisure and conservation; payment for ecosystem services; compensation measures and tradable rights; cost and benefits of Natura 2000; economics of municipal-based conservation; conservation in developing countries

Classes		SWS	ECTS	Total workload
	• Principles of Landscape Ecology (L) • Economics of Conservation (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: oral examination (25 min.) on the contents of the module (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	Recommended previous knowledge: basic knowledge of economics and ecology			
Can be selected for	M.Sc. Landscape Ecology; M.Sc. Landscape Ecology and Nature Conservation			

Elective module "Business Administration in the Healthcare Sector" (EM 15)				
Responsible	Chair of General Business Administration and Health Care Management			
Qualification objectives	• Basic knowledge of institutions, funding and provision of health services in healthcare institutions and systems			
Module contents	• Health Care Management I and III (lectures): Introduction to the healthcare system; basic epidemiological and healthcare-economic data; location factors; funding healthcare service providers; marketing in the healthcare sector; taxes in the healthcare sector; planning transport, planning routes; management theory			
Classes		SWS	ECTS	Total workload
	• Health Care Management I (L) • Health Care Management III (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. on a lecture to be chosen by student (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none; in order to complete all four lecture courses on Health Care Management in the first three seminars of the M.Sc. Bioeconomy, students should attend GM I in the first semester, GM II and IV in the second semester, and GM III in the third semester			

Can be selected for	M.Sc. Business Administration

Elective Module "Hospital Controlling" (EM 16)				
Responsible	Chair of General Business Administration and Health Care Management			
Qualification objectives	• In-depth knowledge of management and leadership of healthcare institutions and systems			
Module contents	• Health Care Management II and IV (lectures): Hospital funding; additional forms of financing; production theory; quality management; hospital information network; external accounting; internal accounting; startups, legal forms of healthcare institutions; integration of healthcare institutions			
Classes		SWS	ECTS	Total workload
	• Health Care Management II (L) • Health Care Management IV (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. on a lecture to be chosen by student (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none; in order to complete all four lecture courses on Health Care Management in the first three seminars of the M.Sc. Bioeconomy, students should attend GM I in the first semester, GM II and IV in the second semester, and GM III in the third semester			
Can be selected for	M.Sc. Business Administration			

Elective module "Project Management" (EM 17)	
Responsible	Chair of Sustainability Science and Applied Geography
Qualification objectives	• Subject-specific knowledge of processes and basic methods of project management • Strategic, systematic and efficient management of projects • Avoiding risks and continually developing projects through critical self-assessments • Raising awareness for the topics of sustainability and participation as they pertain to all projects

	• Flexible adaptation to various project environments and creative problem-solving in a team			
Module contents	• Project Management I – Theory (seminar): Theoretical foundation and exercises in the areas of project planning, financing and risk management, project leadership and teams, communication and quality management; presentation and discussion of various methods and tools of project management using examples from the areas of conservation, development cooperation, research, education, and campaigns • Project Management II – Practical Application (seminar): Independent planning, carrying out and assessment of an own project / development of a project plan; application of various tools of project management; practicing social skills by working in teams			
Classes		SWS	ECTS	Total workload
	• Project Management I – Theory (S) • Project Management II – Practical Application (S)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: coursework essay (15-20 pages) (marked)			
	Non-assessed coursework: presentation with discussion 20 min. (unmarked)			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	Recommended previous knowledge: very good practical knowledge of Microsoft Office applications (Word, esp. Power Point, Excel); Please note: limited number of participants, attendance only permitted following approval from responsible module teacher			
Can be selected for	M.Sc. Sustainable Geography			

Elective module "Cost-Benefit Analysis" (EM 18)	
Responsible	Chair of Economics and Landscape Economy
Qualification objectives	• Expansion of microeconomic knowledge and its application in relation to the economic valuation of natural and landscape resources as well as for the valuation of all kinds of intervention into the landscape • Confident application of cost-benefit analyses to problems of various kinds
Module contents	• Cost-Benefit Analysis (lecture): Introduction to the theoretical principles of cost benefit analyses and their practical applications; microeconomic principles of welfare economics (consumer and producer surplus, compensating and equivalent variation, willingness to pay and accept); assessment of services and costs in primary and secondary markets, overall economic value of natural resources; discounting future services and costs, private and social discount rates; insecurity, expectancy values, information and quasi-option values; valuation methods

	(demonstration projects, direct market values, indirect market values, production values, contingent valuation, choice experiments; benefit transfer and shadow prices; steps in a cost-benefit analysis and case studies; alternative valuation methods (cost-effectiveness analysis, multi-criteria analysis) • Cost-Benefit Analysis (exercises): Practical application of cost-benefit analyses to selected problems; sample calculations; application of spreadsheets; application of statistical methods			
Classes		SWS	ECTS	Total workload
	• Cost-Benefit Analysis (L) • Cost-Benefit Analysis (EX)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 90 min. on the contents of the lecture (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	none			
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. General Studies; M.Sc. Sustainable Geography; M.Sc. Landscape Ecology; M.Sc. Landscape Ecology and Nature Conservation; M.Sc. Regional Development and Tourism			

Elective module "Investment and Financing" (EM 19)				
Responsible	Chair of Business Administration and Finance			
Qualification objectives	• Students become familiar with the basics of corporate investment and financing decisions under certainty and uncertainty. They will also be able to use the appropriate instruments and plan the strategic allocation of debt and equity capital.			
Module contents	• Investment decisions under certainty and uncertainty • Basics of financing decisions for businesses			
Classes		SWS	ECTS	Total workload
	• Investment and Financing (L) • Investment and Financing (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			

On offer	annually, in summer semester
Duration	1 semester
Regular examination date	2nd semester
Requirements	none
Can be selected for	B.A. Business Administration; B.Sc. Business Administration; B.Sc. Management and Law; B.Sc. Mathematics; B.Sc. Physics; M.Sc. Health Care Management; M.Sc. Bioeconomy

Elective module "Internal Accounting" (EM 20)				
Responsible	Chair of General Business Administration: International Financial Markets and Management			
Qualification objectives	• Students can apply calculation methods and evaluate the success of a company			
Module contents	• Cost and performance accounting			
Classes		SWS	ECTS	Total workload
	• Internal Accounting (L) • Internal Accounting (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	Recommended previous knowledge: basic knowledge of business administration			
Can be selected for	B.A. Business Administration; B.Sc. Business Administration; B.Sc. Management and Law; B.Sc. Mathematics; M.Sc. Health Care Management; MSc. Bioeconomy			

Elective module "External Accounting" (EM 21)	
Responsible	Chair of General Business Administration: Auditing and Company Taxation

Qualification objectives	• Students will be able to read a balance sheet and identify ways of organising a balance sheet.			
Module contents	• Accounting and valuation in the individual financial statements under commercial law			
Classes		SWS	ECTS	Total workload
	• External Accounting (L) • Eternal Accounting (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	Recommended previous knowledge: basic knowledge of business administration			
Can be selected for	B.A. Business Administration; B.Sc. Business Administration; B.Sc. Management and Law; B.Sc. Mathematics; M.Sc. Health Care Management; M.Sc. Bioeconomy			

Elective module "Regional Economics" (EM 22)				
Responsible	Chair of General Economics: Growth, Structural Change and Trade			
Qualification objectives	• In-depth understanding of the determinants of regional economic growth			
Module contents	• Foreign Trade (lecture): Foreign trade theory and policy: principles of foreign trade, description of the trade structure, effects on income distribution, trade policy. • Regional Economics (lecture): Approaches for explaining differences in regional development and agglomeration; choice of location in micro- and macroeconomic contexts; powers of dispersion and accumulation in growth equilibrium			
Classes		SWS	ECTS	Total workload
	• Foreign Trade (L) • Regional Economics (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. on the lecture "Regional Economics" (marked)			
	Non-assessed coursework: -			

On offer	annually, in winter semester (Foreign Trade) and in summer semester (Regional Economics)
Duration	2 semesters
Regular examination date	2nd semester
Requirements	Recommended previous knowledge: knowledge of micro and macroeconomics
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. General Studies; B.A. Economics and Business Administration; B.A. Economics; B.Sc. Business Administration

Elective module "Marketing Management I" (EM 23)				
Responsible	Chair of General Business Administration: Marketing			
Qualification objectives	• Comprehensive overview of issues and areas of application for measuring the success of marketing as well as decision-making problems related to price politics of marketing instruments			
Module contents	• Measuring Marketing (lecture): Marketing accounting, customer lifetime value calculation, systems of key performance indicators and selected controlling questions in brand management and the management of marketing assets • Price Policy (lecture): Behavioural pricing and price systems			
Classes		SWS	ECTS	Total workload
	• Measuring Marketing (L) • Price Policy (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 120 min. on Marketing Management I (marked)			
	Non-assessed coursework: -			
On offer	annually, Price Policy in summer semester, Measuring Marketing in winter semester			
Duration	2 semesters			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. General Studies			

Elective module "Marketing Management II" (EM 24)				
Responsible	Chair of General Business Administration: Marketing			
Qualification objectives	• Comprehensive overview of general conditions, structuring and decision-making problems of marketing instruments used in product policy and international marketing			
Module contents	• Product Policy (lecture): Elements of shaping product and assortment policy; branding and brand management, brand strategies, brand architectures • International Marketing (lecture): General conditions and areas of international marketing activities			
Classes		SWS	ECTS	Total workload
	• Product Policy (L) • International Marketing (L)	2 2	6	180 h
Assessment components	Examination and/or marked coursework: written examination 120 min. on Marketing Management II (marked)			
	Non-assessed coursework: -			
On offer	annually, Product Policy in winter semester, International Marketing in summer semester			
Duration	2 semesters			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. General Studies			

Elective module "Case Studies in Strategic Management" (EM 25)				
Responsible	Chair of General Business Administration: Organisation, HRM and Innovation Management			
Qualification objectives	• Tools for organisation and HR management depending on the company's strategy • Application of the knowledge gained in group work using case studies: To what extent do selected companies follow the principles of strategic management? • Presentation and discussion of the results			
Module contents	• Case Studies in Strategic Management (lecture and supervised group work): Application of organisational and coordination tools in case studies on strategic management			
Classes		SWS	ECTS	Total workload

	• Case Studies in Strategic Management (L + EX)	2	6	180 h
Assessment components	Examination and/or marked coursework: presentation and discussion (marked)			
	Non-assessed coursework: -			
On offer	annually, in summer semester			
Duration	1 semester			
Regular examination date	2nd semester			
Requirements	successful completion of the compulsory modules CM 02a.3 and CM 02a.4			
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. Law - Economics - Human Resources			

Elective module "Site Planning" (EM 26)				
Responsible	Chair of General Business Administration: Startup Planning and Supply Chain Management			
Qualification objectives	• Learning methodological principles of site planning for selected types of problems			
Module contents	• Site and Layout Planning (lecture and exercises): Site planning for companies; internal site planning			
Classes		SWS	ECTS	Total workload
	• Site and Layout Planning (L) • Site and Layout Planning (EX)	2 1	6	180 h
Assessment components	Examination and/or marked coursework: written examination 60 min. (marked)			
	Non-assessed coursework: -			
On offer	annually, in winter semester			
Duration	1 semester			
Regular examination date	3rd semester			
Requirements	none			
Can be selected for	*Diplom* Business Administration; M.Sc. Business Administration; B.A. General Studies			

<table>
<tr><th colspan="5">Elective module “Supply Chain Management” (EM 27)</th></tr>
<tr><td>Responsible</td><td colspan="4">Chair of General Business Administration: Startup Planning and Supply Chain Management</td></tr>
<tr><td>Qualification objectives</td><td colspan="4">• In-depth understanding of decision-making in value chains</td></tr>
<tr><td>Module contents</td><td colspan="4">• Supply Chain Management (lecture and exercises): Planning structures and performance of supply chains; decentral coordination among supply chain partners; bullwhip effect; analysis of current economic issues</td></tr>
<tr><td rowspan="2">Classes</td><td></td><td>SWS</td><td>ECTS</td><td>Total workload</td></tr>
<tr><td>• Supply Chain Management (L)
• Supply Chain Management (EX)</td><td>2
1</td><td>6</td><td>180 h</td></tr>
<tr><td rowspan="2">Assessment components</td><td colspan="4">Examination and/or marked coursework: written examination 60 min. (marked)</td></tr>
<tr><td colspan="4">Non-assessed coursework: -</td></tr>
<tr><td>On offer</td><td colspan="4">annually, in winter semester</td></tr>
<tr><td>Duration</td><td colspan="4">1 semester</td></tr>
<tr><td>Regular examination date</td><td colspan="4">3rd semester</td></tr>
<tr><td>Requirements</td><td colspan="4">none</td></tr>
<tr><td>Can be selected for</td><td colspan="4">Diplom Business Administration; M.Sc. Business Administration</td></tr>
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