Note:
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The legally binding versions are found in the University of Innsbruck Bulletins (in German).

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Curriculum for the Joint Study Programme
Master in Environmental Management of Mountain Areas (EMMA) –
at the Faculty of Biology of the University of Innsbruck

§ 1 Description of the Joint Study Programme

(1) The Master's Programme is based on the cooperation agreement between the Free University of Bozen-Bolzano (hereafter FUB) and the University of Innsbruck (hereafter UIBK).

(2) Admission procedure takes place according to the cooperation agreement.

(3) In the first year, courses with a total of 60 ECTS-Credits are to be taken by all students at the FUB. In the second year, a total of 30 ECTS-Credits must be taken at the UIBK. Students have the choice to complete the master's thesis at one of the two universities. Graduates are awarded the academic degree if they perform the required credits with a total of 120 ECTS-Credits, thereof at least 30 ECTS-Credits at the UIBK.

§ 2 Qualification profile

(1) The Master's Programme belongs to the group of studies in the natural sciences.

(2) The Master's Programme offers a synthesis of natural sciences and technical knowledge and competences. The interdisciplinary programme includes the fields of alpine ecology, landscape ecology and planning, water and waste management, geomatics as well as environmental and resource management. The offer is complemented by selected aspects of social sciences, law and economics.

(3) Graduates have in-depth knowledge of biotic and abiotic factors affecting natural and anthropogenic ecosystems; knowledge of information technologies in terms of landscape analysis and planning; scientific training in the field of ecology, ecological renaturation as well as planning and projecting in alpine regions; knowledge in the techniques of analysis and monitoring of forest, agricultural and alpine ecosystems; basic knowledge of implementing sustainable management and the protection of resources in alpine regions.

(4) The interdisciplinary approach of the programme offers a wide range of occupational fields for graduates. Selected fields of activity include: analysis and monitoring of alpine ecosystems; sustainable management; eco-certification and protection of environmental resources in the fields of agricultural economy and forestry in alpine regions; planning, guidance and acceptance of forestry interventions, reforestation and siviculture; planning, projecting and management of measures to restore damaged ecosystems and land use systems; analysis and environmental impact assessment in mountain regions; analysis and natural hazard assessment of hydrogeological origin in mountain regions; management and planning of forestry and protected areas; elabora-

tion of development plans of agricultural alpine regions; organization and support of stakeholder processes; monitoring and implementation of legal environment and nature protection regulations.

(5) Graduates of the Master's Programme may pursue careers in activities as a consultant or expert for planning and civil engineer offices; local, national and international private and public institutions; research institutes and universities; organizations of international cooperation and non-governmental organizations (NGOs).

(6) The master's programme also prepares students for doctoral studies.

§ 3 Scope and duration

A total of 120 ECTS-Credits are awarded for the Master's Programme. This equals a duration of 4 semesters. One ECTS-Credit equals a workload of 25 hours.

§ 4 Admission and selection procedure

(1) The admission to the study programme takes place by the Rectorate. The admission and selection procedure will be published by the Rectorate.

(2) According to the cooperation agreement a maximum of 35 students will be admitted per academic year.

§ 5 Teaching languages

The compulsory modules are taught in English, elective modules are taught in German, English or Italian.

§ 6 Types of courses and maximum number of students per course

(1) Courses without continuous assessment:

Lectures (VO) are courses held in lecture format. They introduce the research areas, methods and schools of thought for a given subject.

(2) Courses with continuous assessment:

1. **Practical courses** (UE) focus on the practical treatment of concrete scientific tasks within an area. Maximum number of students per course: 8 – 15.
2. **Lectures with practical elements** (VU) focus on the practical treatment of concrete scientific tasks that are discussed during the lecture parts of the course. Maximum number of students per course: 8 – 20.
3. **Introductory seminars** (PS) introduce students interactively to scientific literature through the treatment of selected issues. They convey knowledge and methods of academic work. Maximum number of participants: 15 – 20.
4. **Seminars** (SE 'Seminare') provide in-depth treatment of scientific topics through students' presentations and discussion thereof. Maximum number of participants: 15 – 20.
5. **Project studies** (PJ) promote scientific collaboration of two or more fields through the treatment of multidisciplinary topics and the use of various methods and techniques. Maximum number of students per course: 10 – 15.
6. **Excursions with practical elements** (EU), conducted outside the premises of the university, serve to demonstrate and deepen course contents through practical experience with concrete scientific tasks. Maximum number of students per course: 20.

§ 7 Allocation of places in courses with a limited number of participants

The following criteria shall be applied for the allotment of places in courses with a limited number of participants:

1. Students for whom the study duration would be extended due to the postponement are to be given priority.
2. If the criteria in Z 1 do not suffice, the available places are drawn by random

§ 8 Compulsory and elective modules

(1) According to the study regulations and the curriculum of the International Master's Programme in Environmental Management of Mountain Areas (EMMA), the first year, with a total of 60 ECTS-Credits, is to be completed at the Faculty of Science and Technology of the FUB.

(2) In the second year, the following compulsory module, with a total of 5 ECTS-Credits, is to be completed at the UIBK:

Compulsory module 1: Selected Topics in Environmental Management **5 ECTS**

(3) If the Master's Thesis is written at the UIBK, additionally the following compulsory module, amounting to 2 ECTS-Credits, is to be taken:

Compulsory module 2: Master's Thesis Defense **2 ECTS**

(4) Furthermore, in the second year at the UIBK, a total of 25 ECTS-Credits from the following elective modules is to be taken:

Elective module 1: Fundamentals of Sanitary Engineering and Waste Management **5 ECTS**

Elective module 2: Water and Sediment Management **5 ECTS**

Elective module 3: Waste Management **7.5 ECTS**

Elective module 4: Technologies for the Management of Mountain Areas **5 ECTS**

Elective module 5: Environmental Biotechnology **7.5 ECTS**

Elective module 6: Advanced Landscape Ecology **5 ECTS**

Elective module 7: Global Change Ecology **7.5 ECTS**

Elective module 8: Stable Isotopes in Ecology **2.5 ECTS**

Elective module 9: Biodiversity of Aquatic and Terrestrial Habitats **7.5 ECTS**

Elective module 10: Soil Microbiology **7.5 ECTS**

Elective module 11: Soil Quality and Soil Fertility **5 ECTS**

Elective module 12: Agroecosystems **5 ECTS**

Elective module 13: Interdisciplinary Analysis of the Environment: Situations and Problems **7.5 ECTS**

Elective module 14: Interdisciplinary Excursion **7.5 ECTS**

Elective module 15: Sociological Aspects in Regional Development **5 ECTS**

Elective module 16: Nature and Water Protection in Practice **7.5 ECTS**

Elective module 17: Use and Protection of Mountain Ecosystems **7.5 ECTS**

Elective module 18: Quantitative Techniques and Data Analysis in Ecology **7.5 ECTS**

Elective module 19: Philosophy of Science and Gender Research **7.5 ECTS**

§ 9 Courses of the compulsory and elective modules

(1) Compulsory modules

1.	Compulsory module: Selected Topics in Environmental Management	h	ECTS-Credits
a.	**PS Selected Topics in Environmental Management**	1	0.5
b.	**PJ Project Study Environmental Management**	2	4.5
	Total	**3**	**5**
	Objective: Students are able to identify and elaborate environmental management issues.		
	Prerequisites: none		

2.	Compulsory module: Master's Thesis Defense	h	ECTS-Credits
	Oral defence of the Master's Thesis before an examination board.	-	2
	Total	**-**	**2**
	Objective: Reflection on the Master's Thesis in the context of the Master's Programme in Environmental Management of Mountain Areas. Theoretical understanding, methodical fundamentals, imparting of results of the master's thesis and presentation skills are to be focused in this context.		
	Prerequisites: successful completion of all other compulsory modules and the required elective modules and the master's thesis		

(2) Elective modules

1.	Elective module: Fundamentals of Sanitary Engineering and Waste Management	h	ECTS-Credits
a.	**VO Fundamentals of Sanitary Engineering and Waste Management**	2	3
b.	**UE Fundamentals of Sanitary Engineering and Waste Management**	1	2
	Total	**3**	**5**
	Objective: Students are able to present and classify ecological concepts and techniques.		
	Prerequisites: none		

2.	Elective module: Water and Sediment Management	h	ECTS-Credits
a.	**VO Water and Sediment Management in Mountain Areas**	2	3
b.	**UE Water and Sediment Management in Mountain Areas**	1	2
	Total	**3**	**5**
	Objective: Students are able to explain and evaluate the dynamics of water and sediment transport in mountain areas.		
	Prerequisites: none		

3.	Elective module: Waste Management	h	ECTS-Credits
a.	**VO Waste Management**	1	1.5
b.	**UE Biogas**	3	4.5
c.	**SE Biowaste Treatment Technologies**	1	1.5
	Total	**5**	**7.5**
	Objective: Students understand biological treatment technologies in waste management and to implement their knowledge using practical examples.		
	Prerequisites: none		

4.	Elective module: Technologies for the Management of Mountain Areas	h	ECTS-Credits
a.	**VO Technologies for the Management of Mountain Areas**	2	3.5
b.	**UE Technologies for the Management of Mountain Areas**	1	1.5
	Total	**3**	**5**
	Objective: Students are able to explain and compare the functions and use of technologies.		
	Prerequisites: none		

5.	Elective module: Environmental Biotechnology	h	ECTS-Credits
a.	**VO Environmental Biotechnology**	1	1.5
b.	**UE Environmental Biotechnology**	4	6
	Total	**5**	**7.5**
	Objective: Students know environmental problems caused by inherited waste, incidents and local and operational emissions, and biotechnical procedures of prevention or sanitation.		
	Prerequisites: none		

6.	Elective module: Advanced Landscape Ecology	h	ECTS-Credits
a.	**PJ Analysis of Landscape Patterns and Geostatistics**	2	3.5
b.	**SE Advanced Landscape Ecology**	1	1.5
	Total	**3**	**5**
	Objective: Students are able to analyse and assess landscape patterns with scientific methods.		
	Prerequisites: none		

7.	Elective module: Global Change Ecology	h	ECTS-Credits
a.	**VO Ecological Aspects of Global Change**	3	4.5
b.	**PS Ecological Aspects of Global Change**	2	3
	Total	**5**	**7.5**
	Objective: Students are able to link, evaluate and communicate the backgrounds and developments of global change and its interactions with ecological processes.		
	Prerequisites: none		

8.	Elective module: Stable Isotopes in Ecology	h	ECTS-Credits
a.	**VO Stable Isotopes in Ecology**	1	1.5
b.	**UE Stable Isotopes in Ecology**	1	1
	Total	**2**	**2.5**
	Objective: Students understand the theory of stable isotopes and know to apply them to analyse ecological issues.		
	Prerequisites: none		

9.	Elective module: Biodiversity of Aquatic and Terrestrial Habitats	h	ECTS-Credits
a.	**VO Biodiversity of Aquatic and Terrestrial Habitats**	3	4.5
b.	**UE Biodiversity of Aquatic and Terrestrial Habitats**	2	3
	Total	**5**	**7.5**
	Objective: Students are able to analyse and evaluate local, regional and global patterns of biodiversity in terrestrial and aquatic habitats and their causes, adaptions and relevance for eco-processes.		
	Prerequisites: none		

10.	Elective module: Soil Microbiology	h	ECTS-Credits
a.	**SE Soil Microbiology**	1	1.5
b.	**UE Soil Microbiology**	4	6
	Total	**5**	**7.5**
	Objective: Students are able to examine soils with pedological, chemical and microbiological methods and to evaluate them in terms of different issues.		
	Prerequisites: none		

11.	Elective module: Soil Quality and Soil Fertility	h	ECTS-Credits
a.	**VO Soil Quality and Soil Fertility**	2	3.5
b.	**UE Soil Quality and Soil Fertility**	1	1.5
	Total	**3**	**5**
	Objective: Students are able to explain abiotic and biotic components of soil fertility and to practically apply their knowledge.		
	Prerequisites: none		

12.	Elective module: Agroecosystems	h	ECTS-Credits
a.	**VO Agroecosystems**	2	3.5
b.	**UE Agroecosystems**	1	1.5
	Total	**3**	**5**
	Objective: Students have in-depth knowledge of the carbon, nutrient and water cycle and the energy balance of agroecosystems in mountain areas. On that basis, they know how to develop sustainable agricultural production.		
	Prerequisites: none		

13.	Elective module: Interdisciplinary Analysis of the Environment: Situations and Problems	h	ECTS-Credits
a.	**VO Interdisciplinary Analysis of the Environment: Situations and Problems**	1	1.5
b.	**PJ Interdisciplinary Analysis of the Environment: Situations and Problems**	4	6
	Total	**5**	**7.5**
	Objective: Students are able to analyse common concepts and advanced methods of analysing environmental problems, to adapt them in the team to new inter and/or trans-disciplinary issues, to identify, apply, evaluate and critically discuss the suitable mix of methods.		
	Prerequisites: none		

14.	Elective module: Interdisciplinary Excursion	h	ECTS-Credits
	EU Interdisciplinary Excursion Interdisciplinary excursion to habitats or an issue.	5	7.5
	Total	**5**	**7.5**
	Objective: Students are able to deal with a special issue and thus recognize multi- and transdisciplinary interactions between a habitat and its social and political environment, to abstract general connections and to transfer to new situations.		

	Prerequisites: none

15.	**Elective module: Sociological Aspects in Regional Development**	**h**	**ECTS-Credits**
a.	**VO Sociological Aspects in Regional Development**	2	3.5
b.	**PJ Sociological Aspects in Regional Development**	1	1.5
	Total	**3**	**5**
	Objective: Students are able to analyse the dynamics of regional development processes in terms of sociological perspectives. They know how to term and categorize suitable methods and tools.		
	Prerequisites: none		

16.	**Elective module: Nature and Water Protection in Practice**	**h**	**ECTS-Credits**
a.	**PS Nature and Water Protection in Practice**	3	4.5
b.	**EU Natural Planning**	2	3
	Total	**5**	**7.5**
	Objective: Students understand the procedure of natural and water protection by means of case examples and to apply their knowledge in a special project.		
	Prerequisites: none		

17.	**Elective module: Use and Protection of Mountain Ecosystems**	**h**	**ECTS-Credits**
a.	**VO Use and Protection of Mountain Ecosystems**	3	4.5
b.	**PS Nature Protection and Limnology**	2	3
	Total	**5**	**7.5**
	Objective: Students understand the fundamentals of nature protection and to apply their knowledge in practice.		
	Prerequisites: none		

18.	**Elective module: Quantitative Techniques and Data Analysis in Ecology**	**h**	**ECTS-Credits**
a.	**VU Quantitative Techniques and Data Analysis in Ecology**	3	4.5
b.	**PS Quantitative Techniques and Data Analysis in Ecology**	2	3
	Total	**5**	**7.5**
	Objective: Students know how to commonly solve statistical issues.		
	Prerequisites: none		

19.	Elective module: Philosophy of Science and Gender Research	h	ECTS-Credits
a.	**VO Nature as a Political Subject** The term of nature and the relationship to nature in science, culture and society.	2	3
b.	**VO Philosophy of Science and Ethics** Introduction to scientific theory and its relationship to related disciplines, scientific theory of biology (esp. evolution biology) as well as conveyance of fundamentals of scientific and environmental ethics including gender aspects.	2	3
c.	**SE Philosophy of Science and Ethics** In-depth knowledge of selected topics from the lecture "Scientific Theory and Ethics"	1	1.5
	Total	**5**	**7.5**
	Objective: Students are able to describe and discuss scientific characteristics of biology as well as its relationship to other disciplines and its history in terms of gender research as well as scientific ethics.		
	Prerequisites: none		

§ 10 Master's Thesis

(1) A master's thesis amounting to 28 ECTS-Credits has to be written. The Master's Thesis is a scientific piece of work which serves to prove the student's ability to autonomously cope with scientific questions using adequate scientific methods.

(2) The topic of the master's thesis must be related to the field of environment management in mountain areas.

(3) The student may suggest the topic of the master's thesis or to choose from a number of subjects offered.

(4) The master's thesis is supervised by one supervisor at the UIBK and one supervisor at the FUB.

§ 11 Examination regulations

(1) With the exception of the defense of the Master's Thesis module, modules are successfully completed through positive participation in the relevant courses.

Course examinations are:

a. Examinations that assess the knowledge and skills covered in an individual course in which course assessment is based on a single examination at the end of the course. The course instructor has to define the method of examination (written and/or oral) before the course begins.

b. Courses with continuous assessment, for which course assessment is based on regular written and/or oral contribution by participants. The course instructor has to define the assessment criteria before the course begins.

(2) The performance of the compulsory module Master Thesis Defense is assessed by an oral examination held in front of an examination board which is composed of the master's thesis' supervisors and one examiner.

(3) For courses at the universities, the respective national statutory provisions become applicable.

§ 12 Academic degree

(1) Students successfully completing the Master's Programme are to be awarded the title of "Master of Science", shortened to "MSc" at the University of Innsbruck.

(2) The academic degree is to be confirmed by a joint certificate of the Free University of Bozen-Bolzano and the University of Innsbruck.

§ 13 Coming into force

The curriculum comes into force on 1 October 2014, subject to the accreditation of the study programme at the FUB by the Accreditation Council in Rome.