Universität für Bodenkultur Wien

University of Natural Resources and Life Sciences, Vienna

Curriculum

for the Master's Programme

JOINT DEGREE - SUSTAINABILITY IN AGRICULTURE, FOOD PRODUCTION AND FOOD TECHNOLOGY IN THE DANUBE REGION

Programme classification no. 066 501

Effective date 1.10. 2018

CONTENTS

Preamble

The programme portfolio covers all relevant disciplines of science, engineering, economics and social sciences, offering extensive opportunities for interdisciplinary approaches. Based on this comprehensive, scientific expertise, an **international joint master´s programme** is offered with the master´s programme, which tries to make the potential of interdisciplinarity and the cooperation of leading academic institutions in the Danube area for young scientists fruitful.

Sustainable development, food security, technology and quality, sustainable food production, biotechnology and sustainable energy are the core content of the master´s programme. With the international joint master´s programme thus a unique and competent response to issues such as climate change and protection and promotion of livelihoods is offered in and for the Danube region.

The international joint master´s programme in Sustainability in Agriculture, Food production and Food technology is implemented as a joint degree offered by the University of Natural Resources and Life Sciences, Vienna (BOKU) (AT),Szent István University (SZIU), Gödöllö (HU), University of Zagreb (UNIZG) (HR), University of Novi Sad (UNS) (SR) and Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania" Timisoara (BUASVMT) (RO) with contributions (guest lecturers, winter/summer schools,…) from the following associate partner universities: Czech University of Life Sciences Prague (CULS) (CZ), Warsaw University of Life Sciences (WULS) (PL), and Slovak University of Agriculture Nitra (SUA) (SK). Graduates receive a joint master's degree in Sustainability in Agriculture, Food production and Food technology from the three universities which they attended during their studies.
The 4-semester joint master´s programme is offered in English and can only be started at BOKU (AT) in the first semester; the second semester has to be spent at either SZIU (HU) or BUASVMT (RO), the third semester has to be spent at either UNIZG (HR) or UNS (SR) and the 4th semester has to be spent according to the master's thesis topic chosen at any of the five degree-awarding universities (full partner universities). Students have to study at least at 3 different universities; i.e. at least one semester at BOKU (and additional 10 ECTS by co-supervision of the master's thesis), one semester at SZIU or BUASVMT and one semester at UNIZG or UNS. In addition, students have to complete one summer/winter school (either before semesters 1 and 3 or before semesters 2 and 4), an internship and a lecture on preparing a paper/poster for a scientific conference.

§ 1 QUALIFICATION PROFILE

The master's programme in Sustainability in Agriculture, Food production and Food technology is a degree programme which serves to deepen and extend students' pre-vocational academic education, building on the basis provided by a bachelor degree programme (§ 51 [2] item 5 of the Universities Act UG 2002, Federal Law Gazette BGBl I no. 81/2009). The programme fulfils the requirements of Directive 2005/36/EC on the recognition of professional qualifications, article 11, letter.

1a) Knowledge and personal and professional skills

- Graduates have a deep knowledge of agriculture and food production under the aspect of sustainability in the Danube Region.
- Graduates are able to network and exchange the most actual knowledge of agricultural, food production and food technology under the aspect of sustainability.
- They understand the relevance of the principle of sustainability generally and especially for the Danube Region.
- They understand the development of the Danube Region from the point of view of ecology, rural development and cultural history.
- The graduates have the capability to critically select and apply adequate methods for sustainability in agriculture, food production and food technology
- The graduates are able to analyse social interactions in an intercultural context. He/She is aware of intercultural differences and misunderstandings that might result out of these. The graduate has achieved an open-mindedness towards persons with other nationality. Due to the intercultural competence achieved, the graduate is able to be solely responsible for guiding international project teams.
- The graduate is fluent in English.
- Graduates convey research proposals, reports and scientific papers to a wider public audience.

1b) Professional qualifications

The graduates have interdisciplinary knowledge, competencies and skills in agricultural and/or food science with a major focus on sustainability and sustainable technologies. A further focus of the qualification is intercultural learning, which allows graduates a deeper understanding of the cultural and social development of and in the Danube Region.

§ 2 ADMISSION REQUIREMENTS

Previous studies accepted from all parties without further prescription of ECTS credits**:**

- BOKU - BSc Agricultural Sciences
- BOKU - BSc Food Science and Biotechnology
- BOKU - BSc Environment and Bio-Resources Management
- BOKU - BSc Landscape Architecture and Landscape Planning
- BOKU - BSc Forestry
- SZIU - BSc in Agriculture
- SZIU - BSc in Agricultural Engineering
- SZIU - BSc in Agricultural Sciences
- SZIU - BSc in Wildlife Conservation and Management
- UNIZG - BSc Agricultural Economics
- UNIZG - BSc Agricultural Engineering

- UNIZG - BSc Agroecology
- UNIZG - BSc Animal Sciences
- UNIZG - BSc Horticulture
- UNIZG - BSc Organic Agriculture
- UNIZG - BSc Plant Protection
- UNIZG - BSc Plant Sciences
- UNIZG - BSc Mediterranean Agriculture
- UNIZG - BSc Food technology
- UNIZG - BSc Forestry
- UNIZG - BSc Urban Forestry, Nature Conservation and Environmental Protection
- UniOS - BSc Agroeconomics
- UniOS - BSc Plant Production
- UniOS - BSc Horticulture
- UniOS - BSc Mechanization
- UniOS - BSc Zootechnique
- UNS - BSc in Agriculture
- UNS - BSc Crop Science
- UNS - BSc Animal Science
- UNS - BSc Fruit Science and Viticulture
- UNS - BSc Phytomedicine
- UNS - BSc Agricultural Engineering
- UNS - BSc Water Management
- UNS - BSc Agricultural Economics
- UNS - BSc Landscape Architecture
- UNS - BSc Horticulture
- UNS - BSc Agrotourism and Rural Development
- UNS - BSc Agricultural Ecology and Environmental Protection
- UNS - BSc Organic Agriculture
- UNS - BSc Agroindustrial Engineering
- BUASVMT - all bachelor programs of BUASVMT
- COR - BSc in Food Engineering
- COR - BSc Bioengineering
- COR - BSc in Chemical engineering
- COR - Agricultural Sciences (with 20 ECTS conditional admission)
- CULS - BSc Agriculture and Food
- CULS - BSc Sustainable use of Natural Resources

- SUA - BSc Food quality and control
- SUA - BSc Agro food sciences
- SUA - BSc Applied biology
- SUA - BSc Agro biotechnology
- SUA - BSc Viniculture
- WULS - BSc Agriculture
- WULS - BSc Food Technology and Human Nutrition (at the Faculty of Human Nutrition and Consumer Sciences)
- WULS - BSc Human Nutrition and Food Evaluation
- WULS - BSc Dietetics
- WULS - BSc Gastronomy and Hospitality
- WULS - BSc Food Safety (at the Faculty of Food Sciences)
- WULS - BSc Commodity Science (at the Faculty of Food Sciences)

For graduates of bachelor's programmes which are not listed above, mastery of the following learning outcomes (evidenced by ECTS credits) is required for admission:

At least 60 ECTS credits from the following areas (ECTS credits per area are minimum requirements, the total number has to equal 60 or more):

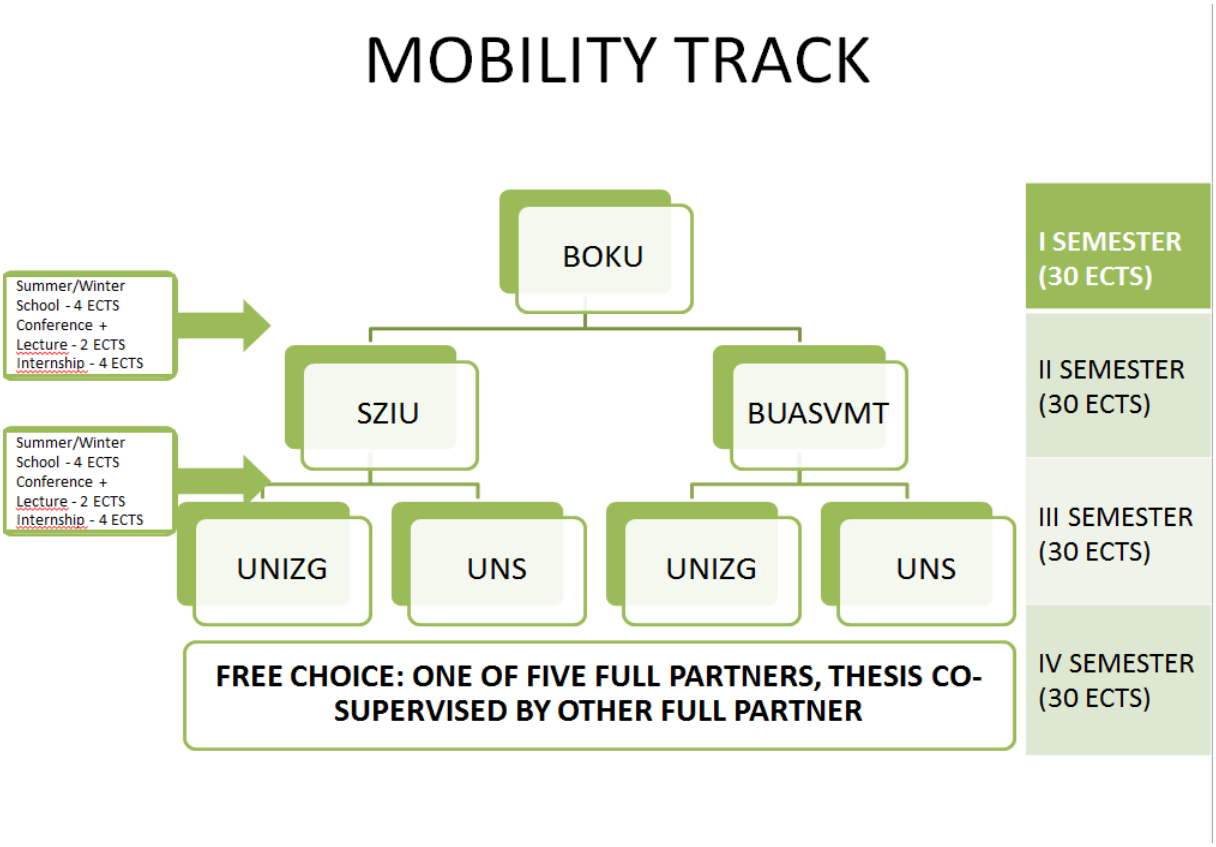
- Natural science: min. 20 ECTS credits
- Plant production: min. 10 ECTS credits
- Animal science: min. 10 ECTS credits
- Economic sciences: min. 10 ECTS credits
- Technological sciences: min. 8 ECTS credits

Admission criteria also comprise English language skills at level B2 of the Common European Framework of References for Languages (CEFR). Equivalent tests and their required minimum scores are as following:

- Cambridge Certificate of Advanced English
- IELTS score 6.0 or better
- TOEFL (paper based 577 or computer-based 233 or 90-91 internet based)
- TOEIC (at least 785 points)
- First Certificate in English (FCE)
- Certificate in Advanced English (CAE)
- Certificate of Proficiency in English (CPE)
- Business English Certificate (BEC) Vantage - at least Pass
- Business English Certificate (BEC) Higher
- Certificate in English for International Business and Trade (CEIBT)

Admission is granted to prospective students who meet the admission criteria, which are stated in the education and examination regulations. The Joint Management Committee will select candidates for admission; and admission at one of the parties is automatically accepted at all other parties. Students in the programme will be registered at each of the parties for the full duration of their studies.

§ 3 PROGRAMME STRUCTURE



Each student has to study at least at 3 different universities; i.e. the student has to spend a minimum of 1 semester (30 ECTS credits) at each of the following institutions: BOKU, SZIU or BUASVMT, UNIZG or UNS. The 4th semester can be spent at any of the 5 degree-awarding universities.

In detail, this means that the students have to complete the following schedule:

a) Semester 1 at BOKU
b) Semester 2 at SZIU or BUASVMT
c) the compulsory summer or winter School, the internship and a lecture on preparing a scientific conference
d) Semester 3 at UNIZG or UNS

e) Semester 4: master's thesis and graduation at one of the 5 degree-awarding partner universities (BOKU, SZIU, BUASVMT, UNIZG, UNS) (with co-supervision of the master's thesis by another of the 5 degree-awarding partner universities)

° the Summer/Winter school will take place either before semesters 1 and 3 or before semesters 2 and 4 as well as the internship and the lecture for conference preparation "Presenting at a Scientific Conference" (the conference of the ICA Regional Network for Central and South Eastern Europe (CASEE) is strongly recommended), respectively. Each student needs to complete ONE summer/winter school, ONE internship and ONE lecture for conference preparation.

Each degree-awarding partner has to offer courses of at least 30 ECTS credits per semester for students to choose.

3a) Duration, total ECTS credits, and structure

The master's programme consists of courses and other requirements worth a total of 120 ECTS credits. This is equivalent to a duration of four semesters (a total of 3,000 60-minute credit hours).

Structure of the master´s programme

Compulsory courses:	62 ECTS credits
Elective courses:	20 ECTS credits
Free electives:	8 ECTS credits
Master's thesis:	30 ECTS credits

The academic programme of the university course consists of focus areas with modules, offered in the form of several courses with different characters (different to the partner universities) - in lectures, lecture and tutorial, seminar or project (in total 90 ECTS). The modules are offered at the different partner universities and their comparability is assured based on the learning outcomes. Each module must be clearly defined in the agreement with the partner universities, that it can be recognised at all partner universities.

The master's thesis is 30 ECTS credits and is supervised both by a competent professional person at one of the five degree-awarding universities and a second competent professional person at another degree-awarding university.

3b) Three-pillar principle

The three-pillar principle is the central identifying characteristics of both the bachelor's and master's programmes offered at the University of Natural Resources and Life Sciences, Vienna. In the master's programmes, the sum of the compulsory and elective courses must be made up of at least

15% technology and engineering
15% natural sciences
15% economic and social sciences, law

The master's thesis and free electives are excluded from the three-pillar rule.

§ 4 COMPULSORY COURSES

Compulsory focus areas that have to be completed by all students are:

- Food Safety and Consumer Science
- Sustainable Agriculture
- Soil, Water and Climate
- Intercultural Learning

Compulsory courses worth a total of 62 ECTS credits are required to complete the master's programme. A minimum of 20 ECTS credits in the focus areas "Food Safety and Consumer Science" and "Sustainable Agriculture", 10 ECTS credits in the focus area "Soil, Water and Climate" and 12 ECTS in the focus area "Intercultural Learning" have to be completed.

Students who complete a compulsory Focus Area at BOKU have to choose the courses marked with an asterisk (*) out of the Focus Areas "Food Safety and Consumer Science", "Sustainable Agriculture", "Soil, Water and Climate" and "Intercultural Learning".

Focus Area "Food Safety and Consumer Science" BOKU	**Course type**	**ECTS credits**
course title		
Cereal technology	VO	2
Food safety and risk management	VS	3
Food microbiology for SIFC*	VO	4
Practical training in food microbiology for SIFC	UE	3
Practical course in food processing	UE	5
Applied quality management practical course for SIFC	UE	5
Food chemistry (for SIFC)*	VO	4
Human nutrition	VO	3
Food chemistry practical course for SIFC	UE	3
Molecular biology for food analysis	VU	3
Food authenticity practical course	UE	3
Validation of cleaning processes and hygienic design	VO	3
Analysis of bio-hazards in foods	VU	3
Automatic identification technology in food industry	VU	3
Food safety in livestock feeding	VS	3
National and international food safety authorities	SE	3
Food biotechnology	VO	5

Focus Area "Sustainable Agriculture" BOKU	Course type	ECTS credits
course title		
Development innovation	VS	3
Applied development research I	VS	3
Ecological plant protection*	VU	3
Global change and pest management	VO	3
Organic fruit production and organic viticulture	VX	3
Organic horticulture (vegetables and ornamentals)	VX	3
Biology an physiology of the grapevine	VO	3
Medicinal and aromatic plants	VO	3
Animal production in organic agriculture	VO	4
Standards, certification and accreditation in organic farming	VS	3
Rhizosphere processes and application to agriculture and soil protection	VO	3
System analysis and scenario technique - methods and practises	SE	5
Plant and environment	VO	3
Soil fertility and soil ecology in organic agriculture	VU	3
Production systems and atmospheric pollution	VO	3
European regulatory framework for organic production	VO	3
Local knowledge and ethnobiology in organic farming – introduction	VS	3
Local knowledge in organic farming - methods seminar	SE	3
Facilitating change for sustainable development	VS	3

Focus Area "Soil, water and climate" BOKU	Course type	ECTS credits
course title		
Meteorological conditions and precipitation	VS	3
Lecture series in soil, water and atmosphere	VO	3
Soils and global change*	SE	4
Water resources planning and management	VO	3
Soil physics and chemistry	VO	3
Soils and food security	VU	2
Agrometeorology	VO	3
Selected projects in meteorology	UE	3

Focus Area "Intercultural Learning" BOKU course title	Course type	ECTS credits
Summer/Winter School: Intercultural training for the Danube Region and regional aspects in agriculture and food production*	VS	4
Intercultural communication	VU	3
Principles of empirical research methods in the social sciences	VS	3
Negotiating change: simulating an international conference for sustainable development	VS	3
Institutions and policies of the EU (introduction to the law and politics of the European Union)	VO	3
Internship*	SE	4
Presenting at a scientific conference*	SE	3

§ 5 ELECTIVE COURSES

Elective courses worth a total of 20 ECTS credits are required to complete the master's programme.

A minimum of 10 ECTS credits has to be completed within one Focus Area. The other 10 ECTS can be chosen according to the interest of the students.

Courses that have not been chosen as compulsory courses may be used as elective courses.

Focus Area "Sustainable rural and regional development and policy" BOKU course title	Course type	ECTS credits
Innovations for sustainable forest management	VS	4
Forest resource economics	VS	4.5
Sustainable spatial development	VS	5
Resource and environmental economics	VO	3
Globalisation and rural development	VO	3
Rural development	VO	3
Rural tourism	VO	2
Economics of multiple use forestry	VS	1.5
Livelihood system dynamics in rural development	VS	1.5

Focus Area "Food Safety and Consumer Science" BOKU*	**Course type**	**ECTS credits**
course title		
Cereal technology	VO	2
Food safety and risk management	VS	3
Food microbiology for SIFC	VO	4
Practical training in food microbiology for SIFC	UE	3
Practical course in food processing	UE	5
Applied quality management practical course for SIFC	UE	5
Food chemistry (for SIFC)	VO	4
Human nutrition	VO	3
Food chemistry practical course for SIFC	UE	3
Molecular biology for food Analysis	VU	3
Food authenticity practical course	UE	3
Validation of cleaning processes and hygienic design	VO	3
Analysis of bio-hazards in foods	VU	3
Automatic identification technology in food industry	VU	3
Food safety in livestock feeding	VO	3
National and international food safety authorities	SE	3
Food biotechnology	VO	5

Focus Area "Biodiversity and sustainable use of natural resources" BOKU	**Course type**	**ECTS credits**
course title		
Multiple criteria decision making in natural resource management	VS	3
Role of soils in nature conservation and wildlife management	VU	1.5
Soil conservation and soil protection	VU	3
Soil erosion models and their application	VU	4.5
Biocultural diversity in rural landscapes	VS	3
Biodiversity and conservation of mountain forests	VS	2
Protection and mitigation measures against natural hazards	VX	3
Soil fertility and Soil ecology in organic agriculture	VU	3
Valuation methods for natural resources	VO	3
Possible impacts of climate change on water resources	VO	3
Facilitating change for sustainable development	VS	3

Focus Area "Sustainable Agriculture" BOKU	Course type	ECTS credits
course title		
Development innovation	VS	3
Applied development research I	VS	3
Ecological plant protection	VU	3
Global change and pest management	VO	3
Organic fruit production and organic viticulture	VX	3
Organic horticulture (vegetables and ornamentals)	VX	3
Biology and physiology of the grapevine	VS	3
Medicinal and aromatic plants	VO	3
Animal production in organic agriculture	VO	4
Standards, certification and accreditation in organic farming	VS	3
Rhizosphere processes and application to agriculture and soil protection	VO	3
System analysis and scenario technique - methods and practises	SE	5
Plant and environment	VO	3
Soil fertility and soil ecology in organic agriculture	VU	3
Production systems and atmospheric pollution	VO	3
European regulatory framework for organic production	VO	3
Local knowledge and ethnobiology in organic farming – introduction	VS	3
Local knowledge and ethnobiology in organic farming - methods seminar	SE	3
Facilitating change for sustainable development	VS	3

Focus Area "Soil, water and climate" BOKU	Course type	ECTS credits
course title		
Meteorological conditions and precipitation	VS	3
Lecture series in soil, water and atmosphere	VO	3
Soils and global change	SE	4
Water resources planning and management	VO	3
Soil physics and chemistry	VO	3
Soils and food security	VU	2
Agrometeorology	VO	3
Selected projects in meteorology	UE	3

Focus Area "Biotechnology" BOKU course title	Course type	ECTS credits
Bioprocess engineering I	VU	4
Plant biotechnology	VO	3
Animal cell culture	VO	2
Biochemical and biotechnological methods (analytics design)	VU	3
Quality management in biotechnology	VU	3
Cell biology	VO	3
Methods in cell biology	VU	3
Cell factory - plants	UE	3
Crop production	VO	3
Safety aspects of plant biotechnology	VO	3
Molecular phytopathology	VU	4
Genetically modified organisms in the environment	SE	2

Focus Area "Regional specialties" BOKU course title	Course type	ECTS credits
Biology and physiology of the grapevine	VS	3
Medicinal and aromatic plants	VO	3
Floriculture	VS	3
Methods in horticultural physiology	US	3
Genetic control of secondary metabolites in perennial crop plants	VO	3
Viticulture and pomology journal club	VS	3

Focus Area "Sustainable energy systems" BOKU course title	Course type	ECTS credits
Technology assessment	VS	3
Computer simulation in energy and resource economics	VS	3
Applied mathematical programming in natural resource management	VS	3
Global waste management I	VO	3
Global waste management II	VO	3
Post-harvest technology	VO	3
Production systems and atmospheric pollution	VO	3
Operations research and system analysis	VU	3

Focus Area "Intercultural Learning" BOKU*	Course type	ECTS credits
course title		
Summer/Winter School: Intercultural training for the Danube Region and regional aspects in agriculture and food production	VS	4
Intercultural communication	VU	3
Principles of empirical research methods in the social sciences	VS	3
Negotiating change: simulating an international conference for sustainable development	VS	3
Institutions and policies of the EU (introduction to the law and politics of the European Union)	VO	3
Internship*	SE	4
Presenting at a scientific conference	SE	3

§ 6 FREE ELECTIVE COURSES

Free electives worth a total of 8 ECTS credits are required to complete the master's programme in Sustainability in Agriculture, Food production and Food technology. Free electives may be selected from all courses offered by all recognised universities in Austria and abroad. Free electives are intended to impart knowledge and skills in the student's own academic subject as well as in fields of general interest. It is recommended to cover at least part of the free elective course requirements with courses from the elective modules offered within this curriculum.

§ 7 MASTER´S THESIS

A master's thesis is a paper on a scientific topic, to be written as part of a master's degree programme (for exceptions please see the By Laws (Satzung) of the University of Natural Resources and Life Sciences, Vienna, part III- Teaching, § 30[9]). The master's thesis is worth a total of 30 ECTS credits. With their master's thesis, students demonstrate their ability to independently address a scientific topic, both thematically and methodologically (§ 51 [8] UG 2002 BGBl. I no. 81/2009).

The topic of a master's thesis shall be chosen in such a way that it is reasonable to expect a student to be able to complete it within six months. Multiple students may jointly address a topic, provided that the performance of individual students can be assessed (§ 81 [2] UG 2002 BGBl. I no. 81/2009).

The master's thesis shall be written in English. Languages other than English are permissible only if approved and confirmed by the master's thesis supervisor and co-supervisor. The master's thesis defensio must be held in English regardless of the language of the master's thesis.

The master's thesis is 30 ECTS credits and is supervised both by a competent professional person at one of the five degree-awarding partner universities and a second competent pro-

fessional person at another degree-awarding university. Co-supervision of the master's thesis is obligatory.

§ 8 COMPLETION

The master's programme in Sustainability in Agriculture, Food production and Food technology has been completed when the student has passed all required courses and received a positive grade on the master's thesis and defensio.

§ 9 ACADEMIC DEGREE

Graduates of the international joint master's programme in Sustainability in Agriculture, Food production and Food technology are awarded the academic degree "Master of Science", abbreviated as "MSc" or "M.Sc." by the three universities that the student has physically attended during his/her studies. These three universities have to be chosen out of the following five universities: University of Natural Resources and Life Sciences, Vienna (Austria), Szent István University, Gödöllö (Hungary), University of Zagreb (Croatia), University of Novi Sad (Serbia) and Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania" from Timisoara (Romania). The academic degree MSc (M.Sc.) shall follow the holder's name (§ 88 [2] UG 2002 BGBl. I no. 81/2009).

The degree certificate and supplement thereto shall be issued to individual students by the institution where such students have sat for their MSc thesis examination, which at BOKU is held in form of a defensio, upon successful completion of the master's programme and in accordance with the education and examination regulations. For BOKU, this means successful completion of at least 40 ECTS at BOKU in order to being awarded the BOKU degree.

The international joint master´s programme in Sustainability in Agriculture, Food production and Food technology in the Danube Region is implemented as a joint degree offered by the University of Natural Resources and Life Sciences, Vienna (BOKU) (AT), Szent István University (SZIE), Gödöllö (HU), University of Zagreb (UNIZG) (HR), University of Novi Sad (UNS) (SR) and Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania" Timisoara (BUASVMT) (RO) with contributions (guest lecturers, summer/winter schools…) from the following associate partner universities: Czech University of Life Sciences Prague (CULS) (CZ), Warsaw University of Life Sciences (WULS) (PL) and Slovak University of Agriculture Nitra (SUA) (SK). Graduates receive a joint master degree in Sustainability in Agriculture, Food production and Food technology in the Danube Region from the three universities that the student has physically attended during his/her studies. These three universities have to be chosen out of the following five universities: BOKU, SZIE, UNIZG, UNS and/or BUASVMT.

§ 10 EXAMINATION REGULATIONS

(1) The master's programme in Sustainability in Agriculture, Food production and Food technology in the Danube Region has been completed successfully when the following requirements (corresponding to components in [7] below) are met:

- positive completion of the compulsory courses worth a total of 62 ECTS credits (§ 4);
- positive completion of elective courses worth a total of 20 ECTS credits (§ 5);
- positive completion of free elective courses worth a total of 8 ECTS credits (§ 6); and
- a positive grade on the master's thesis and the defensio.

(2) Student evaluation takes the form of course and module examinations. Course examinations can be either written or oral, as determined by the course instructor, taking the ECTS credit value of the course into account. Any prerequisites for admission to examinations shall be listed in § 4 under the respective course/module.

(3) Student evaluation in modules: Module evaluation is based on the grades given the students in the individual courses that make up the module. The total evaluation for the module is calculated as the average of the grades of all module courses, weighted by ECTS credits. Average values of .5 or lower are rounded to the better (numerically lower) grade; values of over .5 are rounded to the worse (numerically higher) grade. If deemed necessary, the Dean of Students may require a module examination at his/her discretion.

(4) The choice of examination method shall be based on the type of course: Lectures shall conclude with a written or oral examination, if continuous assessment of student performance is not applied. Seminars (SE) and project-based courses (PJ) can be evaluated based on independently written papers, length and contents of which are determined by the course instructor. For all other course types, the examination type is at the instructor's discretion.

(5) The topic of the master's thesis shall be selected from one of the subjects of the master's programme.

(6) The completed master's thesis shall be publically presented by the student and defended in the form of an academic discussion (defensio). The committee shall consist of a committee chair, a first examiner (the student's supervisor) and a second examiner. The co-supervisor should be included via video conference or joins in person, if possible. The student's total performance (thesis and defensio) will be assigned a comprehensive grade. Both thesis and defensio must receive a passing grade for the student to complete the programme. The written evaluations stating the rationale for the thesis grade and the defensio grade are included in calculating the comprehensive grade and are documented separately.

The comprehensive grade is calculated as follows:

- Master's thesis: 70%
- Defensio (incl. presentation): 30%

(7) A comprehensive evaluation of the student's performance on the entire programme shall be assigned. A comprehensive evaluation of "passed" means that each individual component

of the programme was completed successfully. If individual components of the programme have not been successfully completed, the comprehensive evaluation is “failed”. A comprehensive evaluation of “passed with honours” is granted if the student has received no grade worse than a “good” (2) on all individual components, and if at least 50% of the individual components were graded with 1 (excellent/sehr gut). Students of the international Joint Master’s Programme in Sustainability in Agriculture, Food production and Food technology in the Danube Region need to additionally fulfill the distinction criteria of the three universities that they have physically attended during their studies (out of the following list: Szent István University, Gödöllö (Hungary), University of Zagreb (Croatia), University of Novi Sad (Serbia) and Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania" from Timisoara (Romania)).

§ 11 TRANSITIONAL PROVISIONS

Students who are subject to the master curriculum Sustainability in Agriculture, Food production and Food technology in the Danube Region (Danube AgriFood Master) (H 066 501, version October 1st, 2014) that was in action to date, are entitled to complete their study programme until November 30th, 2018.

For those students who are repositioned to this master´s programme after the transitional period or who voluntarily switch to this master´s programme, examinations for courses taken under the provisions of the previously valid curriculum shall be recognized towards the new programme under the provisions of this curriculum based on the list of equivalent courses.

§ 12 EFFECT

This curriculum shall take effect on 1.10.2018.

ANNEX A TYPES OF COURSES

The following types of courses are available:

Lecture (VO)
Lectures are courses in which certain areas of a subject and the methods used in this area are imparted through didactic presentation.

Exercise course (UE)
Exercise courses are courses in which students are instructed in specific practical skills, based on theoretical knowledge.

Practical course (PR)
Practical courses are classes in which students deal with specific topics independently, based on previously acquired theoretical and practical knowledge.

Seminar (SE)
Seminars are courses in which students are required to work independently on the respective subject, deepen their knowledge of the topic and discuss relevant issues.

Field trips (EX)
Field trips are courses in which students have the opportunity to experience relevant fields of study in real-life practical application, to deepen their knowledge of the respective subject. Field trips can be taken to destinations both in Austria and abroad.

Master's thesis seminar (MA)
Master's thesis seminars are seminars intended to provide students with academic support during the thesis writing process.

Mixed-type courses:
Mixed-type courses combine the characteristics of the courses named above (with the exception of project-type courses). Integration of different course-type elements improved the didactic value of these courses.

Lecture and seminar (VS)
Lecture and exercise (VU)
Lecture and field trip (VX)
Project course (PJ)

Project courses are characterised by problem-based learning. Under instruction, students work - preferably in small groups - on case studies, applying appropriate scientific methods.

Seminar and field trip (SX)
Exercise and seminar (US)
Exercise and field trip (UX)

ANNEX B COURSES OF DEGREE-AWARDING PARTNER UNIVERSITIES

Focus Area "Sustainable rural and regional development and policy"			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Innovations for sustainable forest management	VS	4	W
Forest resource economics	VS	4.5	W
Sustainable spatial development	VS	5	W
Resource and environmental economics	VO	3	S
Globalisation and rural development	VO	3	S
Rural development (in Eng.)	VO	3	S
Rural tourism	VO	2	S
Economics of multiple use forestry	VS	1.5	S
Livelihood system dynamics in rural development	VS	1.5	S
	Total	**27**	
SZIU			
Agricultural Product Marketing	-	3	S
	Total	**3**	
UNS			
Modern Farm Management	-	5	W
Weather derivatives and risk management in agriculture: Theory and applications	-	5	W
	Total	**10**	
UNIZG			
Regional marketing	-	3	W
Environmental risk analysis and management	-	3	W
Financial management in Agribusiness	-	3	W
Project Management and Projects at Agribusiness	-	6	W
Strategic Management in Agribusiness	-	6	W
Agri-environmental law and policy	-	3	W
e-marketing for sustainable development	-	3	W
Food marketing and consumer behaviour	-	6	W
Investments and investment projects in agribusiness	-	3	W
	Total	**36**	

Focus Area "Food Safety and Consumer Science"			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Cereal technology	VO	2	W
Food safety and risk management	VS	3	W
Food microbiology for SIFC	VO	4	W
Practical training in food microbiology for SIFC	UE	3	W
Practical course in food processing	UE	5	W
Applied quality management practical course for SIFC	UE	5	W
Food chemistry (for SIFC)*	VO	4	W
Human nutrition	VO	3	W
Food chemistry practical course for SIFC	UE	3	W
Molecular biology for food analysis	VU	3	W
Food authenticity practical course	UE	3	W/S
Validation of cleaning processes and hygienic design	VO	3	S
Analysis of bio-hazards in foods	VU	3	S
Automatic identification technology in food industry	VU	3	S
Food safety in livestock feeding	VO	3	S
National and international food safety authorities	SE	3	S
Food biotechnology	VO	5	S
	Total	**58**	
SZIU			
Fish production in ponds	-	4	S
Animal hygiene and health	-	3	S
Food and feed safety	-	3	S
	Total	**10**	
BUASVMT			
Advanced food processing techniques	-	8	S
Design and development of a novel food	-	7	W
Elements of human physiology	-	8	S
European strategies regarding food products and food safety	-	2	S
Food chemistry: food authenticity	-	8	W
Legislation and sanitary ethics in nutrition policy	-	2	W
Nutrition and sensory quality of food	-	4	W
Nutritional cooking and chrononutrition	-	4	S
Practice	-	4	S
Nutrition biochemistry (in Engl.)	-	8	S
Nutrition for special categories of consumer (in Engl.)	-	8	S
	Total	**63**	

Focus Area "Biodiversity and sustainable use of natural resources"			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Multiple criteria decision making in natural resource management	VS	3	W
Role of soils in nature conservation and wildlife management	VU	1.5	W
Soil conservation and soil protection	VU	3	W
Soil erosion models and their application	VU	4.5	W
Biocultural diversity in rural landscapes	VS	3	S
Biodiversity and conservation of mountain forests	VS	2	S
Protection and mitigation measures against natural hazards	VX	3	S
Soil fertility and soil ecology in organic agriculture	VU	3	S
Valuation methods for natural resources	VO	3	S
Possible impacts of climate change on water resources	VO	3	S
Facilitating change for sustainable development	VS	3	S
	Total	**32**	
SZIU			
Biometry	-	2	S
	Total	**2**	
BUASVMT			
Biodiversity Conservation	-	8	S
	Total	**8**	
UNS			
Agroecological Concepts in Sustainable Food Production	-	6	W
Constructed Wetlands in Protection of Water Resources	-	6	W
	Total	**12**	
UNIZG			
Aquatic ecosystems and biodiversity	-	3	W
Microbial ecology	-	6	W
Wildlife Forages	-	3	W
Natural enemies and principles of biological control	-	3	W
Molecular methods in microbial agroecology	-	6	W
Ichthyology	-	6	W
Limnology and Oceanology	-	6	W
Beneficial associations of plants and microorganisms	-	3	W
Ecological aspects of grassland management	-	6	S
Geomorphology and landscape ecology	-	3	S
	Total	**45**	

Focus Area "Sustainable Agriculture" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Development innovation	VS	3	W
Applied development research I	VS	3	W
Ecological plant protection	VU	3	W
Global change and pest management	VO	3	W
Organic fruit production and organic viticulture	VX	3	W
Organic horticulture (vegetables and ornamentals)	VX	3	W
Biology and physiology of the grapevine	VS	3	W
Medicinal and aromatic plants	VO	3	W
Animal production in organic agriculture	VO	4	W
Standards, certification and accreditation in Organic Farming	VS	3	W
Rhizosphere processes and application to agriculture and soil protection	VO	3	W
System analysis and scenario technique - methods and practises	SE	5	W
Plant and environment	VO	3	W
Soil fertility and soil ecology in organic agriculture	VU	3	S
Production systems and atmospheric pollution	VO	3	S
European regulatory framework for organic production	VO	3	S
Local knowledge and ethnobiology in organic farming – introduction	VS	3	W
Local knowledge and ethnobiology in organic farming - methods seminar	SE	3	S
Facilitating change for sustainable development	VS	3	S
	Total	**57**	
SZIU			
Integrated Crop Production	-	3	S
Integrated Horticultural Production	-	3	S
Plant Protection Strategies and Systems	-	3	S
Adaptable soil tillage	-	3	S
	Total	**12**	
BUASVMT			
Crop Production	-	8	S
	Total	**8**	
UNS			
Agroecological Concepts in Sustainable Food Production	-	6	W
Farm crops drying and storing	-	7	W
Fruit and vegetable postharvest technology	-	6	W
Crop Ecophysiology	-	7	S
Decision-Making in Agriculture	-	6	S

Plant Nutrition in Sustainable Agriculture	-	7	S
Water Resources Management for Sustainable Agriculture	-	6	S
Water Resources Systems Analysis Techniques	-	6	S
	Total	**51**	
UNIZG			
Field crops management	-	6	W
Livestock production and the environment	-	3	W
Plant pest management	-	3	W
Plant ecophysiology	-	3	W
Rhizosphere ecology	-	3	W
Applied entomology	-	6	W
Yield formation in arable crops	-	3	W
Organic farming	-	6	S
Microbial enzymatic activities in soil	-	3	S
Grassland Management	-	6	S
Forage crops	-	6	S
	Total	**48**	

Focus Area "Soil, water and climate" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Meteorological conditions and precipitation	VS	3	W
Lecture series in soil, water and atmosphere	VO	3	W
Soils and global change	SE	4	W
Water resources planning and management	VO	3	W
Soil physics and chemistry	VO	3	W
Soils and food security	VU	2	W
Agrometeorology	VO	3	W
Selected projects in meteorology	UE	3	W
	Total	**23.5**	
SZIU			
Modern soil observation and conservation methods	-	3	S
GIS applications in natural resource management	-	3	S
Ecotoxicology	-	3	S
	Total	**9**	
BUASVMT			
Water Resources Systems Analysis Techniques	-	8	S
Soil and Climate Change	-	8	S
	Total	**16**	
UNS			
GIS Applications in Land Consolidation	-	6	W

Water Resources Management for Sustainable Agriculture	-	6	W
Water Resources Systems Analysis Techniques	-	6	W
Hydroecology	-	6	W
Soil Resources	-	6	W
Sustainable Use of Soils	-	6	W
	Total	**36**	
UNIZG			
Agroclimatology and climate change	-	3	W
Water Management in Agriculture	-	3	W
Environmental soil science	-	6	W
Regulation of Water	-	3	W
Biogeochemistry of soil metals	-	3	W
Hydrology and water resources	-	6	W
Global ecology	-	6	W
Mineralogy and petrology	-	3	W
Use and conservation of water resources	-	6	S
	Total	**39**	

Focus Area "Biotechnology" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Bioprocess engineering I	VU	4	W
Plant biotechnology	VO	3	W
Animal cell culture	VO	2	W
Biochemical and biotechnological methods (analytics design)	VU	3	W
Quality management in biotechnology	VU	3	W/S
Cell biology	VO	3	S
Methods in cell biology	VU	3	S
Cell factory – plants	UE	3	S
Crop production	VO	3	S
Safety aspects of plant biotechnology	VO	3	S
Molecular phytopathology	VU	4	S
Genetically modified organisms in the environment	SE	2	S
	Total	**36**	
SZIU			
Plant Biotechnology	-	3	S
Molecular Biology and Gene Technology and Methodology	-	4	S
Fundamentals of Animal Biotechnology	-	3	S
Fundamentals of Plant Biotechnology	-	3	S
Molecular Plant Breeding	-	3	S
Molecular Animal Breeding	-	3	S
Fish Biotechnology and Genome Manipulation	-	3	S
Bioinformatics	-	3	S
	Total	**25**	

Focus Area "Regional specialties" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Biology and physiology of the grapevine	VS	3	W
Medicinal and aromatic plants	VO	3	W
Floriculture	VS	3	W
Methods in horticultural physiology	US	3	W
Genetic control of secondary metabolites in perennial crop plants	VS	3	W
Viticulture and pomology journal club	SE	3	W
	Total	**18**	

Focus Area "Sustainable energy systems" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Technology assessment	VS	3	W
Computer simulation in energy and resource economics	VS	3	W
Applied mathematical programming in natural resource management	VS	3	W
Global waste management I	VO	3	W
Global waste management II	VO	3	S
Post-harvest technology	VO	3	S
Production systems and atmospheric pollution	VO	3	S
Operations research and system analysis	VU	3	S
	Total	**24**	
SZIU			
Waste management	-	2	S
	Total	**2**	
UNIZG			
Energetic Utilization of Biomass and Biofuel in Agriculture	-	6	W
Field crops and bioenergy cropping systems	-	3	W
Waste management in agriculture	-	6	W
	Total	**15**	

Focus Area "Intercultural Learning" BOKU			
Course title	**Course type**	**ECTS credits**	**Semester**
BOKU			
Summer/Winter school: Intercultural training for the Danube Region and regional aspects in agriculture and food production*	VS	4	W
Intercultural communication	VU	3	S
Principles of empirical research methods in the social sciences	VS	3	S
Negotiating change: Simulating an international conference for sustainable development	VS	3	W
Institutions and policies of the EU (introduction to the law and politics of the European Union)	VO	3	W
Internship*	SE	4	W/S
Presenting at a scientific conference*	SE	3	W
	Total	**20**	
SZIU			
Basic Studies of the EU	-	2	S
Hungarian Studies (Language and Culture)	-	2	S
	Total	**4**	