Curriculum of the Master Degree Programme

"Applied Plant Sciences"

Code: 066 455

University of Natural Resources and Life Sciences, Vienna

Center for International Relations

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Impressum

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Curriculum of the Master Degree Programme
"Landscape Architecture and Planning"
At the University of Natural Resources and Life Sciences, Vienna

As at October 1st, 2010

§ 1 Description of Qualification

The Master degree programme Applied Plant Sciences at the University of Natural Resources and Life Science, Vienna, imparts students a substantial and cross-curricular knowledge of functions and strategies of the utilisation of agricultural ecosystems for the production of vegetable raw materials and foodstuff. Students of the Master degree programme Applied Plant Sciences acquire interdisciplinary, scientifically-based qualifications for their further career in the areas of plant production, horticulture, pomiculture and viniculture. The broad choice of optional modules focuses on natural sciences from a molecular to an ecosystemic layer as well as specific and relevant agrarian and horticulture-scientific methods. Furthermore, free optional modules offer the possibility to enlarge and deepen individual knowledge, competences and understanding in the fields of Applied Plant Sciences and other study programmes and fields of expertise such as Agricultural Sciences, Agricultural and Food Industries or Organic Farming. International requirements are met by courses held in foreign languages as well as due to study-abroad programmes.

Graduates of the Master degree programme Applied Plant Sciences at the University of Natural Resources and Life Science, Vienna, are qualified in one of the two main focuses: (1) plant production or (2) horticulture, pomiculture and viniculture or (3) an individual course plan.

In the course of the Master degree programme Applied Plant Sciences at the University of Natural Resources and Life Science, Vienna, students acquire the following scientifically-orientated key competences:

Broad expert knowledge; goal-orientated problem solving abilities; analytical, critical, interdisciplinary and individual thinking; applying gained knowledge in accordance to the respective socio-economic and ecologic environment (linked thinking and acting); social competences such as teamwork, communication abilities and an increased sense of responsibility, abilities of team-work and project-work, abilities of transfer between gained knowledge in natural sciences and gained conclusions from engineering sciences.

Professional knowledge connected with social competence enable activities in various fields of work in private as well as public organisations and on local, national or international area; for instance in the fields of production, sales and supply of services (industrial co-operations, agrarian businesses, commercial producer companionships, breeding organisations), preliminary and downstream areas (trade, industry and trade organisations of agriculture, economies and horticulture sciences), counselling and training (Chamber for Agriculture, freelance counselling, agrarian schools and education), agrarian administrative office work and politics (provincial governments, ministries, EU-institutions, lobbies, controlling and certifying) as well as research and development (universities, research centres, industry).

§ 2 Format of the Master Degree Programme

The Master degree programme in Applied Plant Sciences comprises four semesters and is made up of 120 ECTS points. Of the total number of credits 4 ECTS points are compulsory courses (according to § 2 (1)), 30 ECTS points are modules (according to §2 (2) and § 5 (2)), 36 ECTS points are optional modules (according to § 2 (3) and § 5 (3)) and 20 ECTS points are free optional modules. 30 ECTS points are assigned to the thesis for the Master degree (according to § 2 (5)).

These modules can be chosen:

- “Plant Production”
- “Horticulture, Pomiculture and Viniculture”

Furthermore, it is possible to have an individual compilation of compulsory courses and optional modules.

(1) Compulsory courses (P) – 4 ECTS points

Master degree seminar	2 ECTS points
Interdisciplinary excursions	2 ECTS points

(2) Modules – Compulsory courses (SP-P) – every SP-P course comprises 30 ECTS points

- SP-P-1 “Plant Production”
- SP-P-2 “Horticulture, Pomiculture and Viniculture”
- Students may choose a module which will also be displayed in their Master degree certificate. For the successful completion of a module all required courses of one module have to be completed successfully (according to § 7).
- Students who do not wish to choose a module have to successfully complete a total of 30 ECTS points taken from both module – compulsory courses.

(3) Optional modules (W) – 36 ECTS points

Courses to an extent of 36 ECTS points have to be chosen from the optional modules W-1 to W-8 or from the module – compulsory courses SP-P-1 and SP-P-2.

(4) Free optional modules (FW) – 20 ECTS points

Courses to an extent of 20 ECTS points have to be completed successfully. These courses may be taken from the entire range of courses offered by all recognised national and international universities. It is recommended that students choose courses taken from the study-specific range of courses of the Master degree programme Applied Plant Sciences or other Master degree programmes offered by the University of Natural Resources and Life Science, Vienna.

(5) Thesis for the Master degree – 30 ECTS points

The graduation paper is a scientific piece of work which serves the evidence of the students ability to work on a scientific subject autonomously and in a way that is justifiable regarding content as well as methodology. (according to § 51 (1) Z. 8 UG 2002).

§ 3 Academic Qualification

According to § 54 (1) of the university law of 2002 the Master degree programme Applied Plant Sciences is an engineering degree. In accordance with this classification of engineering degrees, graduates of the Master degree programme will be awarded the academic qualification “Diplom-Ingenieur of technical sciences”, shortened to “Dipl-Ing.” or “DI”.

§ 4 Types of Courses

Courses within this degree are defined as follows:

Lectures (VO): Courses in which portions of an academic discipline and the methods involved are didactically presented.

Practical Exercises (UE): Practical exercises are courses which are in professional connection to a lecture. They serve to apply specific practical abilities and skills presented theoretically during the lectures. Furthermore, these practical exercises also serve the acquisition of specific practical knowledge.

Seminars (SE): Seminars are courses which assist in the development of academic abilities. They serve to acquire knowledge autonomously and deepen learned course content and scientific discussion.

Excursions (EX): Excursions are courses held in Austria and abroad and focus on aspects of the Master degree programme which cannot be imparted at the University of Natural Resources and Life Science itself.

(5) Project courses (PJ): These are characterised by problem-based learning. Within a certain topic, students work, primarily in small groups with assistance, through case studies involving the definition of a problem through realisation of the project to the production of written work.

(6) Combinations (VU, VX, VZ, VY, VS, UX, UY, SX)

Courses in which aspects of courses referred to in (1) to (4) are combined didactically:

- Lectures with practical exercises (VU)
- Lectures with excursions (VX)
- Lectures with seminars and excursions (VSX = VY)
- Lectures with practical exercises and excursions (VUX = VZ)
- Lectures with seminars (VS)
- Exercises with excursions (UX)
- Exercises with seminars and excursion (USX = UY)
- Seminars with excursion (SX)

If necessary courses can also be held out of the University of Natural Resources and Life Science, Vienna.

§ 5 Timetable of Courses[1]

Used abbreviations:

LV = course

SST = semester hours

ECTS = European Credit Transfer System points

WS = Winter Semester

SS = Summer Semester

T2 = 2-year rotation 2 = Courses which take place on even academic years (every two years), for example 2008/09 and 2010/11.

T1 = 2-year rotation 1 = Courses which take place on uneven academic years (every two years), for example 2009 and 2011.

(1) **Compulsory Courses**

Compulsory Courses (1) to an extent to 4 ECTS points have to completed.

Number	***Type***	***Name***	***Language***	***Semester***	***SST***	***ECTS***
Compulsory Courses in Modul "Plant Production"						
951.302	EX	Excursion on Grassland	German	SS	0.5	0,5
951.303	EX	Excursion on Crop Husbandry	German	SS	0.5	0,5
951.304	EX	Crop Production (Excursions)	German	SS	1.0	1.0
Compulsory Courses in Modul "Horticulture, Pomiculture and Viniculture"						
952.303	EX	Excursions for Fruitgrowing and Viniculture	German	SS	1.0	1.0
952.304	EX	Excursion of Vegetable Growing	German	WS	0.5	0,5
952.305	EX	Excursion of Cultivation of Ornamentals	German	SS	0.5	0,5

(2) **Modules – Compulsory Courses (SP-P) – every SP-P course comprises 30 ECTS points**

Students may choose a module which will be displayed in their Master degree certificate. For the successful completion of a module all required courses of one module have to be completed successfully.Students who do not wish to choose a module have to successfully complete a total of 30 ECTS points taken from both module – compulsory courses.

Number	***Type***	***Name***	***Language***	***Semester***	***SST***	***ECTS***
SP-P-1: Plant Production						
911.300	VO	Soil Physics and Soil Chemistry	English	WS	2.0	3.0

[1] A more detailed description of all courses, including objective of the course, course contents, name of lecturer, prerequisites, recommended reading, teaching methods, assessment methods and language of instruction, is found in the BOKUonline: https://online.boku.ac.at/

951.305	VS	Field Crop Production and Products	German	WS	3.0	4.5
951.306	UX	Crop Production (Practical Course)	German	SS	2.0	3.0
951.307	VO	Field Crop Breeding	German	SS	2.0	3.0
951.308	UX	Field Crop Breeding (Excercises and Excursions)	German	SS	2.0	3.0
951.309	VO	Physiology of Plant Nutrition	German	WS	3.0	4.5
951.310	UE	Plant Nutrition - Practical Lab	German	WS	2.0	3.0
953.303	VO	Parasitology and Pathology of Crop Plants	German	SS	2.0	3.0
953.305	UX	Plant Protection II - Practical Course	German	SS	2.0	3.0

SP-P-2: Horticulture, Pomiculture and Viniculture						
911.300	VO	Soil Physics and Soil Chemistry	German	WS	2.0	3.0
952.306	VX	Special Vegetable-Growing	German	WS	2.0	3.0
952.307	VX	Specific Fruit Production	German	WS	2.0	3.0
952.308	VO	Biology and Physiology of the Grapevine	German	WS	2.0	3.0
952.309	VU	Perennials and Annuals	German	SS	2.0	3.0
952.310	PJ	Interdisciplinary Project in Horticulture, Fruit Growing and Viticulture	German	SS	4.0	6.0
952.311	PJ	Interdisciplinary Project in Organic Horticulture, Fruit Growing and Viticulture	German	SS	4.0	6.0
951.311	PJ	Breeding of Horticultural and Fruit Crops	German	SS	2.0	3.0

(3) **Optional Modules W**

Courses to an extent of 36 ECTS points have to be chosen from the optional modules W-1 to W-8 or from the module – compulsory courses SP-P-1 and SP-P-2.

Number	***Type***	***Name***	***Language***	***Semester***	***SST***	***ECTS***
W – 1: Plant Production and Grassland Economics						
951.301		Plant Sociology and Soil Aspects of the Grassland Farming	German	WS	2.0	3.0
951.312		Cropping Systems Analysis	English	SS	3.0	4.5
951.313		Crop Production in the Tropics and Subtropics	German	WS & SS	2.0	3.0
951.314		Regeneration Resources I	German	SS	3.0	4.5
951.315		Aspects of Product Quality in Plant Production	English	SS	3.0	4.5
951.316		Medicinal and Aromatic Plants	German	WS	2.0	3.0
951.317		Grassland Management	German	SS	3.0	4.5
951.318		Manuring and Nutrient Fluxes in Grassland	German	WS	2.0	3.0
951.319		Restoration in the Alpine Area	German	WS	2.0	3.0

W – 2: Plant Protection						
831.311	VO	Biology and Ecology of Weeds	German	SS	2.0	3.0
953.301	VO	The Ecological Basis of Biological Control	German	WS	2.0	3.0
953.302	VZ	Plant Protection in Rooms and Gardens	German	T2, SS	2.0	3.0
953.304	VZ	Principles and Methods in Weed Control	German	WS & SS	1.0	1.5
953.306	UE	Laboratory Diagnosis of Plant Damages	German	WS	2.0	3.0
953.310	VZ	Soil-borne Pathogenes and Symbionts	German	SS	2.0	3.0
953.311	VO	Integrated Plant Protection in Orchards and Vineyards	German	WS	2.0	3.0
953.313	SE	Current Plant Protection Issues	German	WS	2.0	3.0
953.320	VU	Biological Plant Protection	German	WS	2.0	3.0
953.312	VU	Integrated and Biological Pest Management in Horticultural Crops	German	WS	2.0	3.0
953.314	VX	Protection of Stored Crops	German	SS	2.0	3.0

W – 3: Plant Biotechnology and Plant Breeding						
731.305	VO	Principles of Law	German	T2, WS	2.0	3.0
772.312	VO	Plant Biochemistry	German	WS	2.0	3.0
791.111	VO	Plant Biotechnology	English	WS	2.0	3.0
791.112	UE	Plant Biotechnology Practical Course	German	SS	3.0	4.5
951.320	VO	Plant Breeding (Breeding Methodology)	German	WS	2.0	3.0
951.321	UX	Classical and Molecular Cytogenetics for Plant Breeding)	German	SS	2.0	3.0
951.325	VO	Molecular Plant Breeding	English	WS	2.0	3.0
951.326	UE	Molecular Plant Breeding	English	WS	2.0	3.0
953.316	VS	Phytopathology	German	WS	2.0	3.0
954.309	VU	Molecular Phytopathology	German	SS	3.0	4.5
954.318	SE	Developmental Genetics of Plants	English	WS or SS	2.0	3.0
954.321	VO	Plant Molecular Biology	German	SS	2.0	3.0

W – 4: Horticulture, Pomiculture and Viniculture						
874.315	VO	The Nature of Tree Nursery	German	SS	2.0	3.0
951.322	UE	Breeding of Horticultural Crops	German	SS	2.0	3.0
952.312	VZ	Quality in Fruit Growing	German	T2, WS	2.0	3.0
952.313	VZ	Growing-Techniques in High Quality Viniculture	German	T2, SS	3.0	4.5

952.315	VO	Processing Technology of Fruit and Vegetable	German	WS	2.0	3.0
952.316	VY	Organic Fruit Growing and Viticulture	German	WS	2.0	3.0
952.317	VY	Biological Production of Vegetables and Ornamentals	German	WS	2.0	3.0
952.318	VX	Floriculture (Ornamentals Supply Chains)	English	T2, WS	2.0	3.0
952.319	VS	Sustainable Fruit Production and housegardening	German	WS	2.0	3.0
952.320	VS	Quality in Horticulture	German	WS	2.0	3.0
952.314	VU	Pomology and Variety Preservation	German	WS	2.0	3.0
952.328	VX	Postharvest Technology (Horticulture)	German	WS	2.0	3.0

W – 5: Garden Design and Maintenance						
852.310	VU	Sketching	German	SS	2.0	3.0
874.307	VU	Care and Assessment of Trees	German	WS	3.0	4.5
952.321	PJ	Project: Planting Design	German	SS	3.0	4.5
952.322	VX	Horticulture and Cemetery-Greenkeeping	German	WS	2.0	3.0
952.323	VU	Women in Rural Gardening and Agriculture	German	WS	2.0	3.0
952.324	UX	Use of Ornamental and Scented Plants	German	SS	2.0	3.0
952.325	VY	Introduction to Therapeutical Gardening	German	T2, SS	2.0	3.0
952.326	VU	Use of Ornamental Trees in Landscaping	German	SS	2.0	3.0
952.327	VS	Colour in Garden Design	German	WS or SS	2.0	3.0
852.306	VO	History of Garden Art	English	WS	2.0	3.0
852.307	VU	Preservation of Historic Gardens	German	SS	2.0	3.0
916.317	VU	Tree Diseases in Urban Areas and Cultural Landscapes	German	WS	2.0	3.0

W – 6: Soil Sciences						
911.303	VU	Land Taxation and Soil Mapping	German	WS	2.0	3.0
911.304	VO	Soil Characteristics for Special Uses	German	WS	2.0	3.0
911.307	PJ	Interdisciplinary Project Work: Soil Sciences	German	WS	4.0	
911.308	UE	Soil Physics – Exercises in the Laboratory	German	SS	2.0	3.0
911.309	UE	Soil Chemistry Laboratory	English	WS	2.0	3.0
911.310	VO	Soil Microbioloy	German	WS	1.0	1.5
911.311	UE	Methods in Soil Microbiology	English	T2, SS	3.0	4.5
911.312	VO	Rhizosphere Processes and Application to Agriculture and Soil Protection	English	SS	2.0	3.0

911.313	VX	Soil structure: Development, Functions and Changes in Agricultural Soils	German	SS	3.0	4.5
911.314	VU	Molecular Microbial Ecology of Soils	German	SS	2.0	3.0
911.323	VX	Soil in the Environment	German	SS	2.0	3.0

W – 7: Agricultural Engineering						
931.301	VO	Mechanisation on Grassland	German	WS	2.0	3.0
931.302	VO	Climate Engineering	German	T2, SS	2.0	3.0
931.303	SX	Agricultural Engineering in Plant Production – Seminar	English	SS	3.0	4.5
931.305	VO	Post-Harvest Technology	English	T2, WS	2.0	3.0
931.308	VS	Instruments of an Advisory Service for Agricultural Engineering and Construction	German	WS	2.0	3.0
931.314	VX	GPS-based Agriculture	German	SS	2.0	3.0
892.303	VO	Physical Properties of Agricultural Products and Materials	German	SS	2.0	3.0
931.306	VX	Composting-Technology	German	SS	2.0	3.0
931.307	VS	Technology Assessment for Agriculture	German	WS	2.0	3.0

W – 8: Additional Courses						
793.306	VU	Bioinformatics	English	WS or SS	3.0	4.5
814.304	VO	Agrometeorology	German	SS	2.0	3.0
815.325	VO	Agricultural Engineering	German	T2, SS	2.0	3.0
831.003	VO	Stress Physiology of Plants	German	SS	2.0	2.0
831.302	VU	Methods of Measuring Stress Resistance in Plants	German	SS	2.0	3.0
831.312	VO	Plants and their Environment	English	WS	2.0	3.0
831.313	VO	Water Relations of Plants	German	T2, WS	2.0	3.0
835.304	VU	Mathematical Modelling in Agricultural Sciences	German	SS	3.0	4.5
851.301	VO	Experimental Design	German	T2, WS	2.0	3.0
851.302	UE	Experimental Design - Lab	German	T2, WS	2.0	3.0
951.323	VU	Biometrics in Plant Breeding and Breeding Research	German	T2, WS	2.0	3.0
951.324	VO	International Agriculture	English	WS	2.0	3.0
953.319	SE	Literature Seminar - Applied Plant Science	German	SS	2.0	3.0

§ 6 Thesis for the Master Degree

(1) The graduation paper is a scientific piece of work which serves the evidence of the students ability to work on a scientific subject autonomously and in a way that is justifiable regarding content as well as methodology. (§ 51 (1) Z. 8 UG 2002). The thesis for the Master degree is an integral part of the Master degree programme Applied Plant Sciences. 30 ECTS points are granted for the thesis for the Master degree.

(2) The scientific subject of the graduation paper has to be chosen from a subject relevant and related to the Master degree programme Applied Plant Sciences.

(3) The supervision and grading of the candidate's work is incumbent upon the university professor who has assigned the chosen subject for the graduation paper.

(4) The thesis for the Master degree has to be presented and defended in a public expert talk before evaluation by the supervisor. The result of this presentation has to be integrated in the grading of the Master degree thesis.

§ 7 Display of a Module in the Master degree certificate

(1) Students may choose a module which will also be disclosed in their Master degree certificate. For the successful completion of a module all required courses of one module have to be completed successfully according to § 5 (2).

(2) The modules "plant production" and "horticulture, pomiculture and viniculture" can be chosen as a module. Furthermore, it is possible to have an individual compilation of compulsory courses and optional module. In this case courses to an extent of 30 ECTS points have to be completed successfully and must be taken from both SP-P parts according to § 5 (2.1) and (2.2).

§ 8 Graduation Requirements

(1) The Master degree programme Applied Plant Sciences is concluded upon the successful completion of the following requirements:

- positive completion of all required compulsory courses to an extent of 4 ECTS points (according to § 2 (1) and § 5 (1)),
- positive completion of all required modules to an extent of 30 ECTS points (according to § 2 (2) and § 5 (2)),
- positive completion of optional modules to an extent of 36 ECTS points (according to § 2 (3) and § 5 (3)),
- positive completion of free optional modules to an extent of 20 ECTS points (according to § 2 (4)),
- positive evaluation of the Master degree thesis and its public defence (according to § 6).

(2) Evaluation takes place as course exams. Course examination may be oral and / or written, as defined by the lecturer. Students are granted the right to request a different method of course examination. This can only be done in cooperation with the lecturer and by stating justified reasons.

(3) The course examination has to be in accordance with the type of course: lectures are concluded either orally or in a written, unless they are not evaluated accompanying the lecture. Courses of the types SE, VS, VSX, SX and USX can be concluded by handing in a self-composed, written seminar paper. The amount of this seminar paper has to be defined by the lecturer of the course. With all other types of courses the method of course examination will be defined individually by the lecturer.

(4) The graduation paper is a scientific piece of work which serves the evidence of the students ability to work on a scientific subject autonomously and in a way that is justifiable regarding content as well as methodology (§ 51 (1) Z. 8 UG 2002).

(5) The concluded graduation paper has to be presented and defended in a public expert talk. This presentation and defence has to be organised by the supervisor of the thesis. At least one additional university lecturer with respective professional competence has to be nominated. This person also has to participate in the subsequent expert talk. The candidate has the right to suggest this person. This summoned university lecturer has to be inform on the topic of the graduation paper in advance.

(6) Courses held in foreign languages: Students are explicitly advised to complete study-specific courses held in foreign languages to an extent of at least 6 ECTS points.

§ 9 Admission to the Master Degree Programm

(1) The Master degree programme Applied Plant Sciences requires the Bachelor degree programme Agronomy at the University of Natural Resources and Life Science, Vienna. Graduates of the Bachelor degree programme Agronomy at the University of Natural Resources and Life Science, Vienna, are therefore admitted to the Master degree programme Applied Plant Sciences.

(2) Graduates of Bachelor degree programmes taken from all professionally adequate fields and equal international studies are admitted to the Master degree programme Applied Plant Sciences. It has to be stated that knowledge in the fields of natural scientific foundation, socio-economic basics, agrarian, horticultural and market gardening production is required for graduates of other Bachelor degree programmes.

§ 10 Commencement

The Master degree programme Applied Plant Sciences comes in force on October 1, 2004.

§ 11 Transitional regulations

(1) Regular students, who are permitted to follow the diploma degree programme “Landwirtschaft” according to their degree course scheme on the basis of the UniStG from 1. 10. 2000, may continue to follow their degree programme. From the effective date of the new degree programmes for Bachelor and Master degrees, students are permitted to complete their degree within the legal duration period, with the addition of one extra semester, according to § 80 b (2) UniStG. If the degree is not completed within this period, then the student will be required to follow the Bachelor degree programme for the remainder of his / her studies (An admission to the Master degree programme can only take place after the positive completion of a Bachelor degree programme, see § 3).

(2) For students, who continue their degree according to a diploma degree programme there is an equivalence list which shows which courses or groups of courses from the range of the Master degree programme of the respective diploma degree programme are equivalent to the Master

degree programme. Courses of diploma degree programmes, which are no longer offered or no longer assessed have to be completed according to the equivalence list of the Master degree programme. Equal footing in this equivalence list do not need any further confirmation. Credentials, which were issued for diploma degree programmes after the effective date of the new degree programmes for Master degree programmes count for diploma degree programmes without any further confirmation.

(3) After admission to the Master degree programme according to § 12 (7) of the Bachelor degree programme Agricultural Sciences (acknowledgements after switching from the diploma degree programme “Landwirtschaft”) all successfully completed exams for the third part of the diploma degree programme “Landwirtschaft” according to UniStG for subjects of the chosen Master degree programme will be accredited. This does only apply to subjects which are covered and equal; otherwise they can be claimed as optional modules for the chosen Master degree programme.