



Semester Package

AGRICULTURE

University of Natural Resources and Life Sciences, Vienna



Bachelor Courses - Winter Term

Course	Course Number	ECTS	Prerequisites
Economics and politics of natural resources	854106	2	-
Course in plant anatomy for students of agricultural sciences (in Eng.)	831147	1	-
Standards, certification and accreditation in organic farming (in Eng.)	933103	3	-

Bachelor Courses - Summer Term

Course	Course Number	ECTS	Prerequisites
Human nutrition and food	952160	3	Open for agricultural sciences, life sciences, science of human nutrition, ecotrophology, management of bio-resources. Students need the will to work in small groups on selected topics and share their findings with the other groups.
Organic farming in tropical and subtropical regions	933110	3	Basic knowledge in organic farming
Introduction to systemic thinking for organic farming: Theories and methods with examples from organic farming (933112	1,5	-

Bachelor Courses - Winter or Summer Term

Course	Course number	ECTS	Prerequisites
Introduction to academic agricultural English (in Eng.)	120101	3	none, ideally: English language skills at Matura level (= B2) or better



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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisites
Agrometeorology	814304	3	Basic knowledge on meteorology, plant production, soil sciences and plant physiology.
Animal Production in Organic Agriculture	932302	4	Previous knowledge is expected in the fields of Organic Farming, Animal Breeding, Animal Husbandry, and Feeding, equivalent to studies in a Bachelor Programme of Agricultural Sciences!
Animal Production Systems	932308	6	Sound knowledge of the basics of animal breeding, husbandry and nutrition which are at least equivalent to the respective Bachelor-courses is an indispensable precondition. IMPORTANT: incoming students (mobility programmes) are warmly welcome, but are strongly advised to critically reflect their respective knowledge BEFORE they register for this course! The ability to integrate different disciplinary perspectives at the level of production systems is absolutely necessary for describing and analysing complex problems in animal production systems. Having achieved a first insight into the characteristics of Animal Production System is expected, as well as into approaches which are suitable for addressing the production system in its entirety.
Applied development research I	934302	3	Genuine interest in development research
Applied Statistical Methods in Livestock Sciences	932339	7	Basic knowledge in statistics (equivalent to bachelor course statistics in Agricultural Sciences)
Aspects of Product Quality in Plant Production	957310	4	Basic knowledge of crop production, plant breeding and chemistry.
Biology and Physiology of the Grapevine—Exercises	958344	3	Recommended: Lecture "Biology and Physiology of Grapevine"
Biology and Physiology of the Grapevine	958348	3	Solid knowledge in plant sciences, soil sciences, and biology. Student must have taken Viticulture.
Advanced vineyard management	958349	3	Recommended: Lecture "Biology and Physiology of Grapevine (958348)"
Computer Simulation in Energy and Resource Economics	731369	3	-



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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisites
Farmland Ecology	833311	1	-
Foresights—What Future to Expect? (Late Lessons from Early Warnings)	730306	2	-
Formulation of Questions and Experimental Design in Ecological Research	833317	4,5	Basic classes in statistics will help a lot.
Gene Technology for Plant Pathologists	953318	3	-
Game Theory in Environmental and Natural Resource Management	731335	3	-
Genetic Control of Secondary Metabolites in Perennial Crop Plants	958347	3	-
Genetics of Diversity	932312	3	-
Global Case Studies on Organic Agriculture	933319	1,5	Knowledge on organic agriculture required (e.g. exam in an introductory course on organic farming) .
Global Change and Pest Management	953336	3	There are no formal requirements. However, basic knowledge in ecology, forest and/or agricultural entomology and plant protection is expected
Horticultural Products as a Source of Functional Food: Physiological and Nutritional Aspects	952337	3	Knowledge of basic rules and theories of chemically, biochemically and physically processes.
Interdisciplinary Project Work: Soil Sciences	911307	6	Fundamental knowledge in soil science.
Lecture Series in Soil, Water, and Atmosphere	815340	3	-
Local Knowledge and Ethnobiology in Organic Farming	933333	3	-
Local knowledge and ethnobiology in organic farming - methods seminar	933334	3	Prior attendance of the course “Local Knowledge and Ethnobiology in Organic Farming - Introduction” (Course number 933.333) and English language skills on Master level are required. Basic knowledge about research design in social sciences is advantageous.
Medicinal and Aromatic Plants	951316	3	-



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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisites
Molecular genetics of yeasts and hyphal fungi	940333	3	Basics in genetics, molecular genetics and biochemistry
Molecular Phytopathology	940328	4	-
Molecular Plant Breeding	957325	3	Knowledge in classical, molecular, and cytogenetics is necessary for understanding this course, as well as knowledge in plant and/or animal breeding.
Molecular Plant Breeding—Practical	957329	4	Good general knowledge about classical and molecular genetics is needed. Knowledge in plant or animal breeding is of advantage. Attending course 957325 is highly recommended.
Organic Fruit Production and Organic Viticulture	958317	3	-
Organic Horticulture (vegetables and ornamentals)	952333	3	Basic knowledge of organic farming/ horticulture is needed .
Phylogenetic Principles in Genetic and Genomic Analysis	834313	3	Basic evolutionary biology and genetic knowledge.
Physiology of crop nutrition	95133	4	Basics in chemistry and plant physiology
Physiology of Crop Nutrition—exercises	951310	3	It is expected that students have attended the lecture ‚Physiology of Crop Nutrition (951333)‘ and are familiar with the principals of plant nutrition including topics such as nutrient and water acquisition by plants, nutrient transport in plants, functions of mineral nutrients, and interactions between root system traits and acquisition of soil resources.
Plant and Environment	831312	3	-



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Course	Course Number	ECTS	Prerequisites
Procedures of Plant Production in Organic Agriculture I	933331	1	Basics in plant productions, conventional or organic farming, soil management, plant nutrition and the ability for a critical discussion with present research (peer-reviewed research papers).
Protection of Natural Resources by Organic Farming	933302	3	-
Quantitative Animal Genetics	932311	6	-
Remote Sensing and GIS in Natural Resource Management	857321	3	-
Rhizosphere Processes and Application to Agriculture and Soil Protection	911312	3	Basic knowledge in soil and plant sciences (at least bachelor level)
Soil Chemistry Laboratory	911309	3	-
Soil Conservation and Soil Protection	815321	3	-
Soil Ecology	833301	3	-
Soil physics and chemistry	911300	3	Knowledge of fundamental physics, chemistry, and soil science is required (at least bachelor level)
Soil Water Management	815320	3	Basic knowledge in rural water management.
Sustainable Land Use in Developing Countries	912122	3	-
System Analysis and Scenario Technique—Methods and Practices	933310	5	Some knowledge of organic agri-food systems is expected. Experience of working in a team is beneficial. No prior knowledge of systems thinking / research is necessary
Traditional and Molecular Aspects of Grapevine Breeding and Selection	958341	3	-
Viticulture and Pomology Journal Club	958334	3	General knowledge on viticulture and/or fruit sciences to understand recently published publications in the field.
Molecular Animal Genetics	932334	3	-



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Course	Course Number	ECTS	Prerequisites
Water relations of plants	831313	3	Some introductory course in general botany
Marketing project - case studies	735303	3	Strategic Marketing Management
E-Business in the agriculture and food value chain	735315	3	Basics in Computer- and Internet use
Organic fruit production and organic viticulture	958317	3	-
Multivariate analysis of ecological data sets	831315	3	Introductory course in statistics
Multivariate analysis of ecological data sets - exercises	831316	1.5	Introductory course in statistics, basics of the R software
Animal breeding and the sustainable development goals	932344	3	-
Plant Breeding - Principles and Methods	957320	3	Completion of the bachelor courses 'Pflanzenzüchtung' [957106] and 'Genetik (AW)' [941112] and or similar courses is highly recommended! General knowledge about classical and molecular genetics is required. General knowledge about applied statistics is of advantage
Plant Breeding—Principles and Methods—Practical Exercises	957321	3	-
Plant Virology and Bacteriology	953322	3	Basic knowledge in the field of plant protection
Plant Nematology	953309	1,5	Basic biology and agriculture.
Post-harvest Technology	931305	3	-
Designing Breeding Programs	932335	3	Advanced Animal Breeding (Spezielle Tierzucht, 932.306)



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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisites
Plant Biotechnology	790111	3	Basic knowledge in Botany, proven by participation in corresponding lectures, e.g. Crop plant sciences.
Plant Breeding - Principles and Methods	957320	3	Completion of the bachelor courses 'Pflanzenzüchtung' [957106] and 'Genetik (AW)' [941112] and or similar courses is highly recommended! General knowledge about classical and molecular genetics is required. General knowledge about applied statistics is of advantage
Plant Breeding—Principles and Methods—Practical Exercises	957321	3	-
Plant Virology and Bacteriology	953322	3	Basic knowledge in the field of plant protection
Plant Nematology	953309	1,5	Basic biology and agriculture.
Post-harvest Technology	931305	3	-
Modern Bioinformatics	790389	2	-
Structure and analysis of genomes	940301	3	Master level and above
Crop Production Systems in Organic Agriculture	933307		Basic knowledge of organic plant production (crop rotation)
Cropping Systems Analysis	951331	4	Basic knowledge in agronomy and crop physiology
Decision Support Systems	735318	3	-
Ecological Plant Protection	953324	3	Basic knowledge of the diagnosis and biology of arthropod pests and plant diseases, i.e. entomology and phytopathology, microbiology and chemistry.
Ecology and Population Biology of Plants in Agro-Ecosystems	831304	5	Basic knowledge about morphology, anatomy, ecology and systematics of plants are essential. Experience with the terminology in site ecology (soil, climate) and land use techniques helps a lot following the talks
Ethics in Organic Agriculture	933306	3	Some knowledge of organic agriculture is beneficial.



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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisites
International Agriculture	951324	3	-
Analysis of Bio-Hazards in Foods	970301	3	Basic knowledge of analytical chemistry, in particular in instrumental analytical chemistry.
Laboratory Diagnosis of Plant Damages	953327	3	-
Stress Physiology of Plants	831331	2	Basic knowledge of plant structure and functions
Methods of Measuring Stress Resistance in Plants	831302	3	-
Physiological Disorders of Grapevine	958339	1.5	Students should have passed the lecture VO & UE Weinbau, VO & UE Physiology of Grapevine
Phytomedicine in Pomology	953335	3	Contents of LV 953100. Basic knowledge of crop protection (BSc-level agricultural sciences)
Practical Course in Plant Biotechnology	790327	4.5	790111 Plant Biotechnology
Bioinformatics: Selected Aspects	790383	3	A familiarity with computer based methods and concepts of data analysis will be helpful. We expect everyone to have a basic working knowledge of the "R" statistical data analysis language. For Boku students, we highly recommend the course "Statistics with R" to be completed in the same term or earlier terms.
Master's Thesis Seminar	812084	3	-
Applied Development Research II	934303	3	National and international students who pursue a doctoral degree, provided that their research is related to applied development issues; Master and bachelor students who are concerned about 'research for development' in Africa, Asia or Latin America.
Procedures of plant production in organic agriculture II	933332	1	Basics in plant productions conventional or organic farming, soil management, plant nutrition and the ability for a critical discussion with present research (peer reviewed research papers)



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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisites
Research Practice in Animal and Plant Breeding and Genetics	932340	15	Basic principles of breeding and genetics. The course is intended for MSc and PhD-level students with an appropriate background.
Paper Discussion Animal Breeding and Genetics	932341	3	A general knowledge of quantitative and molecular genetics is expected.
Agricultural Engineering in Plant Production—Seminar	931300	4	The prerequisite for participation in the course is a solid foundation in agricultural engineering and agricultural production, as well as in plant production.
Research project in viticulture and fruit sciences	958318	4	Only master students. Students who attended the seminar "Organic fruit growing and viticulture" (958316 or 958317) are given preference.
Crop Production in the Tropics and Subtropics	951332	4	-
World Wines and Viticulture	958342	3	Basic aspects of plant production systems and ideally viticulture and wine making
Floriculture	952318	3	Fundamental knowledge in horticultural plant production. Fundamental knowledge in plant physiology .
Methods in Horticultural Physiology	952328	3	Bachelor level in agriculture, horticulture, biology (plant sciences)
Soil Microbiology Course	911333	4	-
The global organic control and certification system	933320	3	This is a class for advanced students! Expected are: Knowledge on organic farming principles and practices; Knowledge on EEC Reg. 834/2007 and EEC Reg 889/2008 (At least one course taken on that topic, e.g. watch courses of Paul Axmann!)



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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisites
Food and Agricultural Policies in New Institutional Economics	731353	3	This lecture will principally start from scratch It may be of some advantage if participants feel familiar with Neoclassical Economics. Mostly, this will have been covered by some undergraduate microeconomics course. In any case, there will be a concise refreshment of Neoclassical Economics for all those who want to go for it.
Principles of Commodity Markets and Trade Policy	731325	3	Principles of Economics
Global Networking	735322	6	-
Agricultural Production and Policy Impact Modelling	731386	3	-
The global organic control and certification system	933320	3	This is a class for advanced students! Expected are: Knowledge on organic farming principles and practices; Knowledge on EEC Reg. 834/2007 and EEC Reg 889/2008 (At least one course taken on that topic, e.g. watch courses of Paul Axmann!)
Procedures of plant production in organic agriculture II	933332	1	Basics in plant productions conventional or organic farming, soil management, plant nutrition and the ability for a critical discussion with present research (peer reviewed research papers)
Project: Organic farming in tropical and subtropical regions	933323	6	1. Knowledge on organic agriculture required (e.g. exam in an introductory course on organic farming). 2. Students of the Master OF & AES is given priority in the registration, then second priority is given to other master students. Bachelor degree is a precondition. 3. Good skills in reading and summarizing scientific and technical literature, and presenting the results, are of advantage.
Plant molecular biology	940321	3	-
Developmental genetics of plants	940318	3	-
Contribution of animal breeding to global food security	932342	3	Basics of animal science



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Course	Course Number	ECTS	Prerequisites
Valuation Methods for Natural Resources	731328	3	It is assumed that students have completed at least one introductory course in microeconomics and either statistics or econometrics, and are comfortable with differential and integral calculus.
Markets, Prices, and Industrial Organisation	731391	3	Introduction to Economics or Managerial Economics.
Introduction to Development Cooperation	731395	3	A strong interest in development issues
Rural development	731347	3	-
Globalisation and Rural Development	731333	3	some background in economic theory would be of some advantage. This could be provided by e.g. ‚Wirtschaftliche Grundlagen – Volkswirtschaftslehre‘ (731104), und ‚Principles of Commodity Markets and Trade Policy‘ (in Eng.) (731325). Some critical parts of these lectures will be recapitulated briefly in order to assure some common ground.
Vine Nutrition	951334	1.5	-
Plant based aspects of abiotic stress responses in grapevine	958340	3	Students should have passed exams of VO & UE Weinbau, VO & UE Physiology of Grapevine
Biogeochemistry of soils	911341	3	Fundamental knowledge of the main features of soil composition (phases and their constituents such as elemental composition, main compounds and mineralogy), soil (forming) processes, soil classification (international system - World Reference Base), basics of soil chemistry, soil physics and soil biology (bachelor level).
Soil Fertility and Soil Ecology in Organic Agriculture	933308	3	-
Vegetation Dynamics and Fire Ecology	912339	3	-
Mechanization of Agriculture in Developing Countries	931312	4	-
Technology in Organic Agriculture	931322	3	basic knowledge of agrophysics, fundamentals of agricultural engineering, agricultural process engineering and organic agriculture. The ability to work scientifically is required.



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Course	Course Number	ECTS	Prerequisites
Livelihood system dynamics in rural development	934304	1.5	an advantage, but not required: 169.401 Development Innovation
Facilitating change for sustainable development	934305	3	an advantage, but not required: 169.401 Development Innovation and/or Livelihood system dynamics in rural development (934304)
Participatory methods in development research and practice	934317	3	Of advantage: 169.401 Development Innovation; Livelihood System Dynamics in Rural Development (934304) ; Facilitating Change for Sustainable Development (934305)
Animal Husbandry in Tropical and Subtropical Regions	932324	3	-
Using bioinformatics for expression profiling by next generation sequencing	790379	2	A familiarity with computer based methods and concepts of data analysis is highly recommended (eg. by completion of 791330)
Case Studies in Organic Grassland Management	933340	2	Botany, soil science, plant- and animal nutrition
Organic Farming and Regional Development	933316	6	It is advisable that you bring basic knowledge about organic agriculture and enthusiasm for the topic!
Food and Agricultural Policies in New Institutional Economics	731353	3	This lecture will principally start from scratch It may be of some advantage if participants feel familiar with Neoclassical Economics. Mostly, this will have been covered by some undergraduate microeconomics course. In any case, there will be a concise refreshment of Neoclassical Economics for all those who want to go for it.
Principles of Commodity Markets and Trade Policy	731325	3	Principles of Economics
Global Networking	735322	6	-
Agricultural Production and Policy Impact Modelling	731386	3	-
Developmental genetics of plants	940318	3	-
Contribution of animal breeding to global food security	932342	3	Basics of animal science



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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisites
<u>Agroecology, cultural ecology and ethnoecology—the interdisciplinary discourse in natural resource management</u>	933329	3	This course is designed for students being far into their Master studies and preparing themselves for their Master thesis (or doctorate). It's an advanced course, not a beginner's or an introductory course and prior basic knowledge in searching, reading and analysing scientific literature is expected.
<u>European Regulatory Framework for Organic Production</u>	933303	3	No need but agricultural background of help
<u>Procedures in Plant Production in Organic Agriculture II</u>	933332	1	Basics in plant productions conventional or organic farming, soil management, plant nutrition and the ability for a critical discussion with present research (peer reviewed research papers)
<u>Organic Farming in the Public Debate</u>	933317	3	Basic knowledge in organic agriculture and qualitative interview methods are an advantage
<u>Soil Indicators</u>	911304	3	Basic soil knowledge.
<u>Principles of Empirical Research Methods in the Social Sciences</u>	731383	3	-
<u>Ethnobotany—Introduction</u>	933337	2	-
<u>Ethnobotany—Research and Application</u>	933338	3	Participation in the lecture Introduction to Ethnobotany 933337 is recommended .
<u>Soil Management in Tropical and Subtropical Developing Regions</u>	911324	3	-
<u>Interdisciplinary Excursion on Organic Agriculture</u>	933312	2	Previous knowledge on organic farming is of advantage
<u>Biocultural Diversity in Rural Landscapes</u>	834321	3	-
<u>Project: Organic farming in tropical and subtropical regions</u>	933323	6	1. Knowledge on organic agriculture required (e.g. exam in an introductory course on organic farming). 2. Students of the Master OF & AES is given priority in the registration, then second priority is given to other master students. Bachelor degree is a precondition. 3. Good skills in reading and summarizing scientific and technical literature, and presenting the results, are of advantage.
<u>Plant molecular biology</u>	940321	3	-



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Procedures of plant production in organic agriculture II	933332	1	Basics in plant productions conventional or organic farming, soil management, plant nutrition and the ability for a critical discussion with present research (peer reviewed research papers)
Project: Organic farming in tropical and sub-tropical regions	933323	6	1. Knowledge on organic agriculture required (e.g. exam in an introductory course on organic farming). 2. Students of the Master OF & AES is given priority in the registration, then second priority is given to other master students. Bachelor degree is a precondition. 3. Good skills in reading and summarizing scientific and technical literature, and presenting the results, are of advantage.
Plant molecular biology	940321	3	-
Developmental genetics of plants	940318	3	-
Contribution of animal breeding to global food security	932342	3	Basics of animal science

How to look for courses:

boku.ac.at/int-in-boku-howtolookforcourses-en.html

For more information please contact

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