

Curriculum Policy of the Graduate School of Agricultural Science, Graduate Program

Agricultural Science plans to conserve natural and artificial ecosystems and its ideal of "Sustainable coexistence science" contributes to human society through the production, management, utilization and development of biological resources which are the basis of our food, clothing and shelter. Based on this philosophy, the fundamental objective of the Graduate School of Agricultural Science is to carry out comprehensive, specialized research and education related to the various issues of "Food, Environment, Health and Life, From Farm to Table". The Graduate Program is arranged into 3 majors: Agricultural Engineering and Socio-Economics, Bioresource Science and Agrobioscience with curriculums developed following the respective policies on the basis of this fundamental objective to nurture outstanding individuals that can contribute to society.

Curriculum Policy of the Graduate School of Agricultural Science, Department of Agricultural Engineering and Socio-Economics Master's Program

In the Master's Program of the Department of Agricultural Engineering and Socio-Economics, education and research is conducted related to the building of a symbiotic food system which includes production technology and nature, artificial environments, crops, foods, humans regional and international society based on an interdisciplinary point of view and methodology that comes from the fusion of agricultural engineering and agricultural economics. The aim of the program is to train people with the research skills to be able to tackle the various problems from the agricultural production base and reach to the production, processing, marketing and consumption of the food, and with the necessary skills for occupations where high-level expertise is required.

Learning Objectives	1st year	1st year	2nd year	2nd year
	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common grounding in the five graduate schools of the natural sciences.	Advanced Science and Technology 1-1 Advanced Science and Technology 1-2 Advanced Science and Technology 1-3 Advanced Science and Technology 1-4 Advanced Science and Technology 1-5			
Study Goal 2 Acquire a broad grounding and interdisciplinary quality in agricultural sciences for the food, environment and health.	Food, Environmental and Healthy Life (Section of Food) Food, Environmental and Healthy Life (Section of Environment) Food, Environmental and Healthy Life (Section of Healthy Life)			
Study Goal 3 Acquire the skills to summarize, present and express research results.	Presentation Exercise I	Presentation Exercise II		
Study Goal 4 Acquire a high level of specialized knowledge in order to be able to take a guiding role in the academic field or in employment involved with agriculture through collaboration of the knowledge and technology in agricultural engineering and economics to solve the various problems of the basis of agricultural production, and production, processing, marketing and consumption of food.	Hydrological Systems of Watersheds Advanced Environmental Engineering for Agricultural Land Agricultural Facilities Engineering (intensive) Environmental Informatics Process Control Systems for Agri-food Materials Control System and Instrumentation of Bio-Production Field Crop Production Systems	Watershed Hydrology and Environment Advanced Environmental Control and Disaster Prevention Agricultural Facilities and Geo-Environmental Engineering Agricultural Facilities Engineering (intensive) Terrain-Vehicle Systems Biomeasurement Technology Master Course Development of Environmental and Bioproduction Systems (intensive)		Development of Environmental and Bioproduction Systems
	Agricultural Organization Theory Food System Social and Economic Information Rural Policy International Agriculture (intensive) Exercise in Subject Development Special Collaboration Lecture Overseas Exercise in Tropical Agriculture (intensive) Exercise in Asian Agriculture (intensive) Exercise in International Plant and Animal Protection Special Subject Exercise I - 1	Food and Environmental Economics Agricultural Organization Management Special Subject Exercise I - 2	International Agriculture (intensive) Special Collaboration Lecture	Special Subject Exercise II - 1 Special Subject Exercise II - 2

Study Goal 5 Furthermore acquire the skills necessary for a high-level professional.	Advanced Physiology I Advanced Molecular Genetics Advanced Mechanism of Signal Transduction Animal Genome Science Plant Genetics Microbial Genomics Bioreaction Engineering Advanced Biochemical Engineering Molecular Biotechnology Plant Molecular Biology Physiological and Molecular Plant Pathology Molecular Chemical Biology Food System Environmental Informatics International Transportation Economics Advanced Logistics Functional Packaging
Study Goal 6 Further enhance ones knowledge in the area/field associated with the intended area of specific expertise.	Other Subjects

Curriculum Policy of the Graduate School of Agricultural Science, Department of Bioresource Science Master's Program

In the Master's Program of the Department of Bioresource Science, research and education is conducted in Bioresource Science which generalizes the various issues from the basis to the applications related to useful animals, plants, microbes and their interactions from the gene to the ecosystem level. The aim of the program is to train people with the research skills directed towards the search, production, utilization and development of management technology of biological resources, and with the necessary skills for occupations where high-level expertise is required.

Learning Objectives	1st year	1st year	2nd year	2nd year
	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common grounding in the five graduate schools of the natural sciences.	Advanced Science and Technology I-1 Advanced Science and Technology I-2 Advanced Science and Technology I-3 Advanced Science and Technology I-4 Advanced Science and Technology I-5			
Study Goal 2 Acquire a broad grounding and interdisciplinary quality in agricultural sciences for the food, environment and health.	Food, Environmental and Healthy Life (Section of Food) Food, Environmental and Healthy Life (Section of Environment) Food, Environmental and Healthy Life (Section of Healthy Life)			
Study Goal 3 Acquire the skills to summarize, present and express research results.	Presentation Exercise I	Presentation Exercise II		
Study Goal 4 Acquire a high level of specialized knowledge in order to be able to take a guiding role in the academic field or in employment involved with agriculture to improve the quality and quantity of food production which is fundamental to the existence of humanity through the search, development and improvement of genetic resources to contribute to food production in the 21st Century.	Animal Genome Science Developmental Biotechnology in Mammals Applied Biotechnology for Mammalian Development Regulation System of Animal Nutrition and Metabolism Animal Molecular Morphology Physiology of Plant Production Utilization of Fruit Resources Ornamental Plant Resources Advanced Tropical Agronomy Biochemistry and Molecular Biology for Horticultural Science Improvement of Agricultural Bioresources Exercise in Subject Development Overseas Exercise in Tropical Agriculture (intensive) Exercise in Asian Agriculture (intensive) Exercise in International Plant and Animal Protection	Symbiology Reproduction for Species Conservation Andrology Biology of Mammalian Germ Cells Regulation of Animal Metabolism and Function Histophysiology on Host Defense Mechanism Molecular Ecology of Pathogenic Microorganisms Pathogenesis of Infectious Diseases Useful Animal Resources Physiology and Biochemistry of Economic Plants Plant Molecular Breeding Forests and Urban Greenspace The Use of Plant Genetic Resources Fruit Tree Protection and Breeding Vegetable Plant Resources Quality Control of Horticultural Products Tropical Crop Physiology Special Collaboration Lecture Special Subject Exercise I - 1		Special Subject Exercise II - 1 Special Subject Exercise II - 2

Study Goal 5 Furthermore acquire the skills necessary for a high-level professional.	Advanced Physiology I Advanced Molecular Genetics Advanced Mechanism of Signal Transduction Animal Genome Science Plant Genetics Microbial Genomics Bioreaction Engineering Advanced Biochemical Engineering Molecular Biotechnology Plant Molecular Biology Physiological and Molecular Plant Pathology Molecular Chemical Biology Food System Environmental Informatics International Transportation Economics Advanced Logistics Functional Packaging
Study Goal 6 Further enhance ones knowledge in the area/field associated with the intended area of specific expertise.	Other Subjects

Curriculum Policy of the Graduate School of Agricultural Science, Department of Agrobioscience Master's Program

In the Master's Program of the Department of Agrobioscience, research and education is conducted related to Agrobioscience, which is the bioscience for the utilization of the diverse functions of living organisms for the production of crops, foods, chemical and medical supplies. The aim of the program is to train people with the research skills to be able to analyze a wide range of functions and phenomena related to agriculture and food from the molecular to the ecosystem level, and provide them with the skills necessary for occupations where high-level expertise is required.

Learning Objectives	1st year		2nd year	2nd year
	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common grounding in the five graduate schools of the natural sciences.	Advanced Science and Technology I-1 Advanced Science and Technology I-2 Advanced Science and Technology I-3 Advanced Science and Technology I-4 Advanced Science and Technology I-5			
Study Goal 2 Acquire a broad grounding and interdisciplinary quality in agricultural sciences for the food, environment and health.	Food, Environmental and Healthy Life (Section of Food) Food, Environmental and Healthy Life (Section of Environment) Food, Environmental and Healthy Life (Section of Healthy Life)			
Study Goal 3 Acquire the skills to summarize, present and express research results.	Presentation Exercise I	Presentation Exercise II		
Study Goal 4 Acquire a high-level of specialized knowledge in order to be able to take a guiding role in the academic field or in employment involved with agriculture to elucidate the fundamental phenomena related to agriculture and foods from both the side of biology and chemistry.	Plant Molecular Biology Molecular and Cellular Biology Biochemistry on Functional Food Factors Organic Chemistry for the Design of Biofunctional Molecules Functional Phytochemistry Functional Chemistry of Animal Foods Applied Microbiology Molecular Nutrition Structure and Function of Proteins Food Science and Physiology Soil Biochemistry Plant Mineral Nutrition Plant Developmental Genetics Insect Management Exercise in Subject Development Overseas Exercise in Tropical Agriculture (intensive) Exercise in Asian Agriculture (intensive) Exercise in International Plant and Animal Protection	Protein Chemistry Organic Chemistry of Biologically Active Molecules Natural Product Synthesis Spectroscopic Analysis in Life Science Biochemistry of Plant Secondary Metabolism Chemistry of Animal Production Resources Microbial Genomics Function and Utilization of Carbohydrates Soil Function Photosynthesis Physiological Biochemistry Evolutionary Genetics of Domesticated Plants Stress Cytology Environmental Analytical Science Environmental Bioassay Chemical Reaction in Cell Signaling Diagnosis of Plant Diseases Study on Biological Time Keeping Functional Biology of Insects Special Collaboration Lecture		
	Special Subject Exercise I -1	Special Subject Exercise I -2	Special Subject Exercise II -1	Special Subject Exercise II -2
Study Goal 5 Furthermore acquire the skills necessary for a high-level professional.	Advanced Physiology I Advanced Molecular Genetics Advanced Mechanism of Signal Transduction Animal Genome Science Plant Genetics Microbial Genomics Bioreaction Engineering Advanced Biochemical Engineering Molecular Biotechnology Plant Molecular Biology Physiological and Molecular Plant Pathology Molecular Chemical Biology Food System Environmental Informatics International Transportation Economics Advanced Logistics Functional Packaging			
Study Goal 6 Further enhance ones knowledge in the area/field associated with the intended area of specific expertise.	Other Subjects			

Curriculum Policy of the Graduate School of Agricultural Science, Department of Agricultural Engineering and Socio-Economics Doctoral Program

In the Doctoral Program of the Department of Agricultural Engineering and Socio-Economics, education and research is conducted related to the building of a symbiotic food system which includes production technology and nature, artificial environments, crops, foods, humans regional and international society based on an interdisciplinary point of view and methodology that comes from the fusion of agricultural engineering and agricultural economics. The aim of the program is to train people with the rich knowledge and high-level research skills which are the basis of the research ability required for the development of sustainable and efficient food production and supply systems in Japan, Asia and the world.

Learning Objectives	1st year		2nd year		3rd year	
	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common academic grounding in the five graduate schools of the natural sciences.	Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1	
	Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2	
	Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3	
	Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4	
	Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5	
Study Goal 2 Acquire a high level of technical knowledge along with a deep knowledge and outstanding specialized skills in order to be able to take a guiding role in the academic field or in employment involved with agriculture and through the collaboration of the knowledge and technology in agricultural engineering and agricultural economics, and from the extensive point of view which is not restricted to our country, construct systems that make sustainable and efficient food production and food supply possible.	Advanced Course of Rural Planning	Watershed Environment	Advanced Course of Rural Planning	Watershed Environment	Advanced Course of Rural Planning	Watershed Environment
	Advanced Environmental Engineering Course for Agricultural Land	Terramechanis	Advanced Environmental Engineering Course for Agricultural Land	Terramechanis	Advanced Environmental Engineering Course for Agricultural Land	Terramechanis
	Advanced Course of Hydraulic Structures Engineering	Advanced Course of Post-harvest Technology	Advanced Course of Hydraulic Structures Engineering	Advanced Course of Post-harvest Technology	Advanced Course of Hydraulic Structures Engineering	Advanced Course of Post-harvest Technology
	Integrated Management System of Bio-Production	Food Information System	Integrated Management System of Bio-Production	Food Information System	Integrated Management System of Bio-Production	Food Information System
	Advanced Biomeasurement Technology Doctor Course		Advanced Biomeasurement Technology Doctor Course		Advanced Biomeasurement Technology Doctor Course	
	Economics on Supply and Demand of Food		Economics on Supply and Demand of Food		Economics on Supply and Demand of Food	
	Agricultural Organization Strategy		Agricultural Organization Strategy		Agricultural Organization Strategy	
Study Goal 3 Comprehensively acquire creativity, internationality, humanity and speciality.	Special Research 1	Special Research 2	Special Research 3	Special Research 4	Special Research 5	Special Research 6

Curriculum Policy-of the Graduate School of Agricultural Science, Department of Bioresource Science Doctoral Program

In the Doctoral Program of the Department of Bioresource Science, research and education is conducted in Bioresource Science which generalizes the various issues from the basis to the applications related to useful animals, plants, microbes and their interactions from the gene to the ecosystem level. The aim of the program is to train people with a rich knowledge and the skills which are the basis of the research directed towards the search, production, utilization and development of management technology of biological resources.

Learning Objectives	1st year		2nd year		3rd year	
	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common academic grounding in the five graduate schools of the natural sciences.	Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1	
	Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2	
	Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3	
	Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4	
	Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5	
Study Goal 2 Acquire a high-level of technical knowledge along with a deep knowledge and outstanding specialized skills in order to be able to take a guiding role in the academic field or in employment to improve the quality and quantity of food production which is fundamental to the existence of humanity through carrying out search, development and improvement of genetic resources to contribute to food production in the 21st Century.	Animal Reproductive Physiology		Animal Reproductive Physiology		Animal Reproductive Physiology	
	Regulatory Mechanisms in Animal Life		Regulatory Mechanisms in Animal Life		Regulatory Mechanisms in Animal Life	
	Plant Resource Science		Plant Resource Science		Plant Resource Science	
	Intellectual and Innovative Trials in Horticultural Science		Intellectual and Innovative Trials in Horticultural Science		Intellectual and Innovative Trials in Horticultural Science	
	Advanced Breeding and Genetics		Advanced Breeding and Genetics		Advanced Breeding and Genetics	
	Development of Animal and Plant Bioresources		Development of Animal and Plant Bioresources		Development of Animal and Plant Bioresources	
	Exploitation of Biologically Active Components in Plants		Exploitation of Biologically Active Components in Plants		Exploitation of Biologically Active Components in Plants	
Study Goal 3 Comprehensively acquire creativity, internationality, humanity and specialty.	Special Research 1	Special Research 2	Special Research 3	Special Research 4	Special Research 5	Special Research 6

Curriculum Policy-of the Graduate School of Agricultural Science, Department of Agrobioscience Doctoral Program

In the Doctoral Program of the Department of Agrobioscience, research and education is conducted related to Agrobioscience, which is the bioscience for the utilization of the diverse functions in living organisms for the production of crops, foods, chemical and medical supplies. The aim of the program is to train people with an insight from a broad perspective to the direction in which the science should advance, with a rich knowledge and the skills which are vital in the advanced sciences related to the creation and conservation of agricultural environments and chemical applications in Agrobioscience, together with equipping them with the experimental and expressive power as well as the advanced research skills necessary to contribute to society.

Learning Objectives	1st year	1st year	2nd year	2nd year	3rd year	3rd year
	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester
Study Goal 1 Acquire a common academic grounding in the five graduate schools of the natural sciences.	Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1		Advanced Science and TechnologyII -1	
	Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2		Advanced Science and TechnologyII -2	
	Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3		Advanced Science and TechnologyII -3	
	Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4		Advanced Science and TechnologyII -4	
	Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5		Advanced Science and TechnologyII -5	
Study Goal 2 Acquire a high-level of technical knowledge along with a deep knowledge and outstanding specialized skills in order to be able to take a guiding role in the academic field or in employment involved with agriculture to elucidate the fundamental phenomena related to agriculture and foods from both the side of biology and chemistry.	Advanced Genetics		Advanced Genetics		Advanced Genetics	
	Advanced Molecular Biology		Advanced Molecular Biology		Advanced Molecular Biology	
	Advanced Course in Application of Molecular Microbiology		Advanced Course in Application of Molecular Microbiology		Advanced Course in Application of Molecular Microbiology	
	Advanced Course in Protein Function		Advanced Course in Protein Function		Advanced Course in Protein Function	
	Synthesis and Metabolism on Biofunctional Molecules		Synthesis and Metabolism on Biofunctional Molecules		Synthesis and Metabolism on Biofunctional Molecules	
	Science of Biologically Active Substances		Science of Biologically Active Substances		Science of Biologically Active Substances	
	Soil Biochemistry and Plant Nutrition		Soil Biochemistry and Plant Nutrition		Soil Biochemistry and Plant Nutrition	
	Ecological and Environmental Management		Ecological and Environmental Management		Ecological and Environmental Management	
Study Goal 3 Comprehensively acquire creativity, internationality, humanity and specialty.	Special Research 1	Special Research 2	Special Research 3	Special Research 4	Special Research 5	Special Research 6