

For entrants in AY 2024

Attachment Form 1

Description of Major Program

Name of Faculty (Department) [School of Applied Biological Science (Department of Applied Biological Science)]

Name of Program	Applied Animal and Plant Science Program
1.Degree to be obtained: Bachelor of Agriculture	
<p>2.Overview</p> <p>The School of Applied Biological Science aims to educate students to acquire a wide range of knowledge and understanding in the realms of the natural and social sciences related to applied biology. Specifically, we provide education that allows students to acquire basic knowledge regarding food production, biotic resources, and biotechnology, gain experience in field science, understand bioethics and engineering ethics, and gain abilities in foreign languages, such as English, and in data processing.</p> <p>In the Applied Animal & Plant Science Program, the education is provided by faculties involved in areas represented by five keywords (animal production, plant production, production environment, biotic resources, and biological function) to students to acquire basic knowledge and skills regarding production and use of animals and plants in land and use and to be capable of widely considering situations of related areas and solving problems. In this Program, students study to develop understanding about topics such as physiology of animals and plants, environment for animal and plant production, development of new useful functionality of animals and plants, theory and technology for healthy and modern animal and plant production, the relationship among nature, human beings and animals and plants, and use of animal and plant resources. Students gain the knowledge and skills related to those areas in lectures and they also acquire intellectual and practical abilities via experience in the field and experiments using animal and plant. In addition to that, they broaden their international vision in the foreign book reading course. Furthermore, students improve their abilities comprehensively through the graduation research.</p> <p>This program aims to enable students to develop basic capabilities that can be used for the animal and plant production areas related to such as the sustainable production of animal and plant resources for foods with high quality and safety, and use of animal and plant resources for improving human life and to enhance the international vision related to such areas.</p> <p>This Program educates students to become experts who have acquired a higher level of expertise in the graduate school after this program or a research worker and a specialist with an international point of view in such as a public office for agriculture and fisheries or in business fields related to agriculture, foods, and chemical and pharmaceutical products.</p>	
<p>3.Diploma policy (policy for degree conferment and target to be achieved in the program)</p> <p>The Applied Animal & Plant Science Program aims to develop human resources who are capable of working as a researcher and specialist in the field related to the animal and plant production areas, related to such as the sustainable production of animal and plant resources for foods with high quality and safety and use of animal and plant resources for improving human life. Therefore, in this program, the degree of Bachelor of Agriculture will be awarded to students who acquire the capabilities described below, earn the required credits and to satisfy the specified achievement level, and pass the examination that is administered by the School of Applied Biological Science.</p>	

Through liberal arts education subjects:

- (1) The ability to study autonomously; the ability to collect, analyze, and criticize data; and putting these abilities into practice;
- (2) Insight, from a broad perspective, into the essentials and the background of phenomena, and the linguistic ability and concern about peace which are required for a citizen of the world;
- (3) The ability to identify a problem based on broad knowledge, integrate findings to establish a "knowledge system" that is really useful for problem solving, and examine phenomena from a top-down perspective based on this integrated knowledge; and
- (4) General and basic knowledge of science that enables the student to develop the knowledge and skills required for application in any of the specialty fields of applied biological science.

Through the specialized fundamental subjects for specialized education, the student is required to acquire:

- (5) The ability to understand cutting-edge topics, as well as the basic ideas related to organisms and the biosphere;
- (6) The ability to understand the value orientation and relevance to a globalized society of applied biology, and the importance of communication and consensus building in relation to the application of scientific results; and
- (7) Understanding of problems regarding research misconduct and the importance of research and engineering ethics.

Through the specialized education in this program, the student is required to acquire:

- (8) Systematic understanding regarding production and use of animal and plant resources from natural phenomena in molecular, cell, and individual organism levels to that in ecosystem and production environment;
- (9) Systematic capabilities for data collection, analysis, and research and practical skills for applying such capabilities in academic fields regarding production and use of animal and plant resources; and
- (10) Capability of applying such as the knowledge and skills that he/she has obtained in study on production and use of animal and plant resources in an integrated manner to solve problems that he/she identifies and logically present the conclusion orally or in writing and discuss with the other persons.

4. Curriculum policy (policy for arranging and executing the educational courses)

To enable students to achieve the targets that are defined for the Applied Animal and Plant Science Program, the educational courses are organized and executed according to the following policies:

- (1) Courses in the liberal arts education aim to develop a wide-ranging and in-depth education and general intelligence, and to foster in students a depth of humanity and desire for peace. They also aim to develop practical foreign language abilities, an international perspective, the ability to understand different cultures, and the ability to utilize information and communication. In addition to this, courses in fundamental subjects are incorporated into the liberal arts education in order to develop professionals with the basic scientific knowledge and skills required for application in any of the specialty fields of applied biological science.
- (2) Courses in special education develop basic capabilities related to biology and the biosphere through the "specialized fundamental subjects" that are common for all courses at the School of Applied Biological Science. The courses include exercises abroad, internships, field exercises, and lectures regarding scientific and engineering ethics in order to develop the ability to make a hypothesis and basic, practical capabilities required for activities undertaken in leading positions in the international and/or local community. The courses also aim to develop the ability to understand problems regarding research misconduct and the importance of research and engineering ethics.

(3) The courses in the specialized education for this Program provide the "specialized subjects" related to animal and plant production to allow students to acquire the ability for systematically understanding animal and plant production. Furthermore, the courses of "exercise" and "experiment & practice" for the related area are provided for students to acquire skills and attitudes that can be practically applied and used. In addition to that, students develop general capabilities for problem solving including skills for communication, presentation, and practical foreign language capability while preparing his/her "graduation thesis."

5. Start time and acceptance conditions

The School of Applied Biological Science holds the entrance examination collectively for the Department of Applied Biological Science. Students mainly take the liberal arts curricula that are held for the whole of the university (seminar for developing intelligence, subject regarding peace, introduction to university education, foreign language study, data processing study, disciplinary subjects, and subject regarding health & sports) in the first and second semesters of the first year and the first semesters of the second year. Assignment of students to the Applied Animal and Plant Science Program is actually conducted in the second semester of the second year.

Students study the fundamental subjects for one year after entering the university to acquire the basic knowledge required for studying the expertise. Then they mainly study the specialized fundamental subjects common for the all students of School of Applied Biological Science in the second semester of the second year. Particularly, they take the subjects of Laboratory Work in General Chemistry, Laboratory Work in General Physics, and Laboratory Work in General Biology I & II (including computer exercise) as those regarding experiments that are common for all students of the School of Applied Biological Science that consist of to get basic training for experiments in a wide area that is commonly required for the students of the School of Applied Biological Science. Students acquire a wide range of intelligence, capability in foreign languages such as English, data processing skills, basic knowledge common for the students of the School of Applied Biological Science, understanding for bioethics and ethics of science by the first semester of the second year to allow themselves to understand the aim and characteristics of each major program and select the most appropriate program.

Students are allocated either of four major programs (Integrative Hydrospheric Science Program, Applied Animal & Plant Science Program, Food Science Program, and Molecular Agricultural Biology Program) based on his/her wish and achievement level in the second semester of the second year. Students who enter the university in the fiscal year are equally divided into four programs in principle. The digits after a decimal point are rounded up.

The student must meet the specified "requirements for allocation to the program" if he/she wishes to be allocated to the program.

6. Available qualification

(1) Educational personnel certification: Type 1 License for High School Teacher (science)

(2) Curator License

(3) Appointment qualification for food sanitation supervisor and food sanitation inspector

* For details of acquisition of those qualifications, refer to the "Students Handbook."

(4) Qualification for examination for Class A hazardous materials engineer

7. Class subjects and their contents

* For the class subjects, refer to the subject table in Attachment 1.

* For the details of the class subjects, refer to the syllabus that is published for each academic year.

Achievement evaluation	Numerical conversion
S (Excellent: 90 or more points)	4
A (Very good: 80 - 89 points)	3
B (Good: 70 - 79 points)	2
C (Passed: 60 - 69 points)	1

8. Academic achievement

The evaluation criteria are specified for each academic achievement evaluation item, and the achievement level against the criteria is determined at the end of the semester.

The evaluation score for each evaluation item is converted to a numerical value (S = 4, A = 3, B = 2, and C = 1), and the evaluation standard for academic achievement, from when the student entered the university to the end of the semester, is determined using these values while applying weightings. The evaluation standards consist of three

levels, i.e. Excellent, Very Good, and Good.

Study achievement	Evaluation standard
Excellent	3.00 - 4.00
Very Good	2.00 - 2.99
Good	1.00 - 1.99

* Refer to the relationship between evaluation items and evaluation criteria described in Attachment 2.

* Refer to the relationship between evaluation items and class subjects described in Attachment 3.

* Refer to the curriculum map in Attachment 4.

9. Graduation thesis (graduation research) (meaning, student allocation, timing, etc.)

(1) Purpose

The graduation research in this program (Graduate Thesis) aims to allow the student to dedicate himself/herself to cutting-edge research in order to systematically gain understanding of problems and their background in the field of applied biological science, as well as to acquire comprehensive capabilities while analyzing and considering the obtained results and presenting the results in English both orally and in writing.

(2) Overview and meaning

Students conduct the graduate research under the guidance of their supervisor. Through their graduation research, students engage with the process consisting of understanding the situation (comprehension ability and intelligence), identification of problems (analysis ability and insight), and presentation of the results (proposal and execution ability), and, by doing so, they acquire the capability and skills required to work as experts after their graduation.

Students learn the basic concepts and attitude fundamentally required for research activities, establish a plan for their research, study methods for the research and experiments, and carry out the research under the instruction of their supervisor. Furthermore, students review the results obtained in the research and define targets for the further research. Students experience a series of research processes in order to have the chance to observe research activities at the cutting edge. They prepare a graduation thesis based on the study results and submit it before the specified date.

The "educational effectiveness" is evaluated by effects of the program execution on educational achievement in students.

The "social effectiveness" is evaluated by effects of the educational achievement in the program on the society.

Evaluation method

In this program, the achievement in the program is evaluated from the viewpoints described above for students in the second semester of the fourth year. For the "educational ef

Type	Subject type			Required No. of credits	Class subjects	No. of credits	Type of course registration	Year in which the subject is taken							
								1 st grade		2 nd grade		3 rd grade		4 th grade	
								Springs	Fall	Springs	Fall	Springs	Fall	Springs	Fall
Liberal Arts Education	Peace Science Courses			2		2	Required								
	Basic Courses in University Education	Introductory Seminar for First-Year Students		2	Introductory Seminar for First-Year Students	2	Required								
		Introduction to University Education		2	Introduction to University Education	2	Required								
				0	(Note3)	1									
	Common Subjects	Foreign Languages	English(Note2)	Basic English Usage	2	Communication Basic I	1	Required							
						Communication Basic II	1								
			Communication I	2	Communication I A	1	Required								
					Communication I B	1									
			Communication II	2	Communication II A	1	Required								
					Communication II B	1									
			Non-English Foreign Languages (Select one language) (Note2)	4	Basic Foreign Language I	1	Elective Required								
					Basic Foreign Language II	1									
					Basic Foreign Language III	1									
					Basic Foreign Language IV	1									
		Information and Data Science Courses	4	Introduction to Information and Data Sciences(Note3)	2	Required									
				Fundamental Data Science(Note3)	2	Required									
		Area Courses	12	(Note3)	1 or 2	Elective/ Required									
		Eng? Social Cooperation Courses		(Note3)	0										
		Health and Sports Courses	2	(Note4)	1 or 2	Elective Required									
	Foundation Courses	6	Organic Chemistry	2											
Cell Science			2												

			“Basic Laboratory Work in Chemistry” or	1	Required								
				1									
	Total	40											

○ Instruction regarding credits

Note 1: The year indicated with a circle mark represents that in which students typically take the subject. The year with a double circle mark indicates the year in which students are highly recommended to take the subject. Students are allowed to take the subject in any year after that indicated with a circle or double circle mark. It is required to confirm the semester in which the subject is provided in the class schedule for liberal arts education subjects in the Students' Handbook because some subjects might be provided in different semester from that which is provided in this document.

Note 2: The credit for "Online English Seminar I," "Online English Seminar II," and "Online English Seminar III" that is earned through a self-study, are accepted as the credit for English required for graduation. Achievement in a foreign language skill test and language training might be accepted as a credit. For further information, refer to the description regarding English subjects in the liberal arts education and the item "Credit based on Achievement in Foreign Language Skill Test" in the Students Handbook.

(PP. 32 - 38, Liberal Arts)

Note 3: Area Courses are required to earn 4 credits or more for the natural science subjects and 4 credits or more for the human & social science subjects.

However, "Fundamentals of Biology" of the natural science subjects is a subject for which students are requested to take if he/she did not take biology subjects in the entrance exam (including the University Testing Center Examination).

For the other students, the credit for the subject "Fundamentals of Biology" is not accepted as that for graduation.

Credits earned in Information and Data Science Courses exceeding 4 credits may be included in Natural Sciences. Up to 4 credits of Social Cooperation Courses may be included in Humanities/Social Sciences. Development Seminars may be included in Area Courses.

Note 4: For health & sports subjects, it is recommended to take a practicum in sports.

Note 5: It is required to take "Basic Laboratory Work in Chemistry" that is provided in the first semester in the first year.

Only when failing to earn the credit for "Basic Laboratory Work in Chemistry", it is allowed to take the subject

Type	Subject type	Required No. of credits	Class subjects	No. of credits	Year in which the subject is taken									
					1 st grade		2 nd grade		3 rd grade		4 th grade			
					Springs	Fall	Springs	Fall	Springs	Fall	Springs	Fall		
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			Introduction to Microbiology	2										
			Introduction to Molecular Biochemistry	2										
			Agricultural Production Resources	2										
			Physics for Applied Biological Science	2										
			Ethics of Science and Technology	2										
			Statistics in Biology	2										
			Environmental Sciences for Bioproduction	2										
			Laboratory Work in General Biology I	1										
			Laboratory Work in General Biology II	1										
			Laboratory Work in General Chemistry	1										
			Laboratory Work in General Physics	1										

[illegible]

Table of Registration Standards(Specialized Subjects)

Applied Animal and Plant Science Program

Type	Subject type	Required No. of credits	Class subjects	No. of credits	Year in which the subject is taken							
					1 st grade		2 nd grade		3 rd grade		4 th grade	
					Springs	Fall	Springs	Fall	Springs	Fall	Springs	Fall
Specialized Subjects	Specialized Subjects	56	Plant Nutritional Physiology	2								
			Agricultural Soil Science	2								
			Animal Breeding and Genetics	2								
			Animal Nutrition	2								
			Animal Functional Anatomy	2								
			Introduction to Applied Animal and Plant Science	2								
			Laboratory and Field Works in Applied Animal and Plant Science	1								
			Laboratory and Field Works in Animal Production I	1								
			Reading of Foreign Literature in Applied Animal and Plant Science	2								
			Reproductive Biology	2								
			Production System in Livestock	2								
			Laboratory and Field Works in Plant Production	1								
			Laboratory and Field Works in Animal Production II	1								
			Farm Practice	1								
			Graduation Thesis I	2								
			Graduation Thesis II	2								
			Graduation Thesis III	2								
			29credits									
			Agricultural Plant Production and Biotechnology	2								
			Animal Welfare	2								
			Animal Physiology and Production	2								
			Grassland and Feed Science	2								
			Plant Molecular Biology	1								
			Training for Animal Food Processing	2								
			Seminar in Dairy Field Science	1								
			Topics in Applied Animal and Plant Science I	2								
			Food Hygiene	2								
			Food Biochemistry	2								

			Environmental Animal Physiology Topics in Applied Animal and Plant Science II Topics in Applied Animal and Plant Science III						
			Elective Required Subjects: Take 14 credits from above subjects (Redundant credits over 14 credits move to Elective Subjects)						
			Elective Subjects At least 15 credits must be obtained. Specialized subjects from other Applied Biological Science programs can be included in the elective subjects. Up to 10 credits obtained from specialized subjects at another School and from subjects offered by the AIMS Program completed at the dispatch destination can be included in the credits required for graduation. Credits obtained from Liberal Arts Education Subjects and subjects related to the teaching program cannot be included in the credits required for graduation.						
		124							

[Credits required for graduation] 124 credits (40 credits for liberal arts education subjects + 26 credits for specialized fundamental subjects + 58 credits for specialized subjects)

Results of study in Applied Animal and Plant Science Program

Relation between evaluation items and evaluation criteria

Study achievement			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Knowledge & understanding	(1)	Ability for comprehensive and cross-disciplinary thinking and knowledge / understandings required to see a phenomena from a broad, top-down perspective and to take action for solving problems regarding the specialized area.	Has superior ability for comprehensive and cross-disciplinary thinking and capability to see a phenomenon from a broad, top-down perspective and to take action for solving problems regarding the specialized area.	Has sufficient ability for comprehensive and cross-disciplinary thinking and capability to see a phenomenon from a broad, top-down perspective and to take action for solving problems regarding the specialized area.	Has basic ability for comprehensive and cross-disciplinary thinking and capability to see a phenomenon from a broad, top-down perspective and to take action for solving problems regarding the specialized area.
	(2)	Basic knowledge and understanding required for acquiring expertise	Has fundamental knowledge and profound understanding required for acquiring expertise, and is capable of explaining this knowledge while associating it with items related to other areas.	Has fundamental knowledge and profound understanding required for acquiring expertise, and is capable of sufficiently explaining this knowledge while associating it with items related to other areas.	Has fundamental knowledge and profound understanding required for acquiring expertise, and is capable of providing basic explanation of this knowledge while associating it with items related to other areas.
	(3)	Knowledge and understanding regarding natural phenomena related to animal and plant production in levels of molecule, cell, and individual organism and production environment that supports the phenomena	Capable of providing detailed explanation regarding natural phenomena related to animal and plant production in levels of molecule, cell, and individual organism and production environment that supports the phenomena.	Capable of providing explanation regarding natural phenomena related to animal and plant production in levels of molecule, cell, and individual organism and production environment that supports the phenomena.	Capable of providing basic explanation regarding natural phenomena related to animal and plant production in levels of molecule, cell, and individual organism and production environment that supports the phenomena.
	(4)	Knowledge and understanding regarding the mechanism of animal and plant production in fields and relation between animals and the human society and natural environment.	Sufficiently understands the mechanism of animal and plant production in fields and relation between animals and the human society and natural environment.	Understands the mechanism of animal and plant production in fields and relation between animals and the human society and natural environment.	Substantially understands the mechanism of animal and plant production in fields and relation between animals and the human society and natural environment.
	(1)	Basic ability in communication, information processing, and physical activities required for acquiring expertise	Has superior ability in all the elements regarding communication, information processing, and physical activities required for acquiring expertise.	Has sufficient ability in all the elements regarding communication, information processing, and physical activities required for acquiring expertise.	Has basic ability in all the elements regarding communication, information processing, and physical activities required for acquiring expertise.

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(2)	Basic experimentation abilities and skills required for acquiring expertise	Has sufficient basic experimentation abilities and skills required for acquiring expertise, and is capable of autonomously applying them.	Has sufficient basic experimentation abilities and skills required for acquiring expertise, and is capable of autonomously applying them under instruction.	Generally has sufficient basic experimentation abilities and skills required for acquiring expertise, and is capable of supporting their execution.
(3)	Ability for basic biological analysis and evaluation regarding production function of animals and plants in levels of molecule, cell, and individual organism	Capable of autonomously conducting biological observation, basic physiologic, biochemical, and molecular biological analysis and evaluation. Capable of analyzing data with an appropriate method.	Capable of conducting biological observation, basic physiologic, biochemical, and molecular biological analysis and evaluation according to instruction.	Understands methods for biological observation, basic physiologic, biochemical, and molecular biological analysis and evaluation.
(4)	Basic techniques for handling and testing of animals and plants and those for breeding, cultivation, and management	Capable of appropriately cultivating and managing plants. Capable of autonomously breeding and managing resource and experiment animals for a long period of time. Has acquired skills for holding an animal and sampling.	Capable of cultivating and managing plants. Capable of breeding and managing resource and experiment animals according to instruction. Understands skills for holding an animal and sampling.	Capable of assisting in cultivating and managing plants. Capable of assisting breeding and managing resource and experiment animals.
(5)	Ability for basic evaluation of breeding environment in fields of animal and plant production	Capable of autonomously evaluating conditions for cultivating and managing plants, those for breeding and managing animals, and environment conditions such as breeding facilities and foods.	Capable of evaluating conditions for cultivating and managing plants, those for breeding and managing animals, and environment conditions such as breeding facilities and foods according to instruction.	Capable of measuring conditions for cultivating and managing plants, those for breeding and managing animals, and environment conditions such as breeding facilities and foods according to instruction.
(6)	Ability regarding scientific English that is required as a basis for understanding technical English manuals and international communication capabilities based on the acquired knowledge and approach method for the field	Has very advanced ability for reading English texts, is capable of understanding technical manuals and has acquired sufficient and profound capability for international communication.	Has advanced ability for reading English texts, is capable of understanding technical manuals to some extent, and has acquired sufficient and profound capability for international communication.	Has ability for reading English texts, is capable of partly understanding technical manuals, and has acquired sufficient and profound capability for international communication.

c a p a b i l i t	s i v e (1)	Ability to identify issues that he/she should pursue for a specific phenomenon related to animal and plant production, organize his/her own opinion, logically publish them orally and/or in writing, and discuss the topic	Has advanced capabilities regarding elements of comprehensive ability and skills for such as identification of targeted issues, information processing, statistical analysis, and responsive communication.	Has capabilities regarding elements of comprehensive ability and skills for such as identification of targeted issues, information processing, statistical analysis, and responsive communication.	Has basic capabilities regarding elements of comprehensive ability and skills for such as identification of targeted issues, information processing, statistical analysis, and responsive communication.
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Role of liberal arts education in this program

The liberal arts education in this program aims to build both the language skills and the academic foundation required for the specialized education. It develops not only a capability for studying autonomously and a scientific intelligence based on the ability to collect, analyze and criticize data, but also language skills that allow the student to exchange ideas with others in English. Also, it enhances insight from a broad perspective for the essentials and the background of phenomena, and the linguistic ability and concern for peace which are required for a citizen of the world. It enables students to acquire the ability to integrate findings and establish a "knowledge system" that is really useful for problem solving, and to examine phenomena using a top-down perspective based on this integrated knowledge.

Relation between evaluation items and class subjects

[illegible]

[illegible]

Specialized subjects	Reading of Foreign Literature in Applied Animal and Plant Science	2	Required	5th semester								50	1									50	1			100
Specialized subjects	Reproductive Biology	2	Required	5th semester				80	1	10	1													10	1	100
Specialized subjects	Production System in Livestock	2	Required	5th semester				10	1	80	1													10	1	100
Specialized subjects	Laboratory and Field Works in Plant Production	1	Required	5th semester				10	1							30	1	30	1	30	1					100
Specialized subjects	Laboratory and Field Works in Animal Production II	1	Required	5th semester				10	1									75	1	5	3			10	1	100
Specialized subjects	Farm Practice	1	Required	5th semester						10	1							10	3	70	1			10	1	100
Specialized subjects	Agricultural Plant Production and Biotechnology	2	Elective required	5th semester				80	1	20	1															100
Specialized subjects	Animal Welfare	2	Elective required	5th semester	10	3				80	1													10	1	100
Specialized subjects	Animal Physiology and Production	2	Elective required	5th semester				20	1	70	1													10	1	100
Specialized subjects	Grassland and Feed Science	2	Elective required	5th semester				10	1	80	1													10	1	100
Specialized subjects	Plant Molecular Biology	2	Elective required	5th semester				90	1	10	1															100
Specialized subjects	Training for Animal Food Processing	1	Elective required	5th semester						80	1			20	1											100
Specialized subjects	Seminar in Dairy Field Science	2	Elective required	5th semester						10	1							10	3	70	1			10	1	100
Specialized subjects	Topics in Applied Animal and Plant Science I	1	Elective required	5th semester				20	1	80	1															100
Specialized subjects	Food Hygiene	2	Elective required	6th semester	10	1	10	1	10	1	70	1														100
Specialized subjects	Food Biochemistry	2	Elective required	6th semester				80	1	10	1													10	1	100
Specialized subjects	Environmental Animal Physiology	2	Elective required	6th semester				10	1	80	1													10	1	100
Specialized subjects	Topics in Applied Animal and Plant Science II	1	Elective required	6th semester				20	1	80	1															100
Specialized subjects	Topics in Applied Animal and Plant Science III	1	Elective required	6th semester				20	1	80	1															100
Specialized subjects	Graduate Thesis I -III	6	Required	6th-8th semester	10	3	5	3				5	3	5	3							10	3	65	10	100

Attachment 4

Curriculum map for Applied Animal and Plant Science Program

Study achievementStudy achievement		1st year		2nd year		3rd year		4th year	
Evaluation items		1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester	7th semester	8th semester
Knowledge and understanding required to see a phenomenon from a broad, top-down perspective and for action based on comprehensive and cross-disciplinary thinking	Peace Science Courses ()		Research Front of Bioresource Science ()			Animal Welfare	Graduate Thesis I ()	Graduate Thesis II ()	Graduate Thesis III ()
	Seminar for developing intelligence ()		Research Front of Food and AgriLife Science ()		Introduction to Applied Animal and Plant Science		Public Health()		
	Introduction to University Education ()		Ethics of Science and Technology()				Food Hygiene		
	Introduction to Applied Biological Science()		Agricultural Production Resources()						
			Seminar in Field Science()						

Undergraduate Courses				Graduate Courses		
Introduction to Applied Biological Science()	Organic Chemistry ()	Statistics in Biology ()	Introduction to Applied Animal and Plant Science	Graduate Thesis I ()	Graduate Thesis II ()	Graduate Thesis III ()
Introduction to Microbiology ()	Cell Science ()	Introduction to Physiology ()		Public Health()		
Introduction to Applied Biological Science()	Research Front of Bioresource Science ()					
Introduction to Microbiology ()	Research Front of Food and AgriLife Science ()	Environmental Sciences for Bioproduction()		Food Hygiene		

Knowledge & understandingK	Knowledge and understanding regarding natural phenomena related to animal and plant production in levels of molecule, cell, and individual organism and production environment that supports the phenomena	Introduction to Applied Biological Science()	Research Front of Bioresource Science ()	Introduction to Physiology ()	Plant Nutritional Physiology	Reproductive Biology	Food Hygiene		
		Introduction to Microbiology ()	Research Front of Food and AgriLife Science ()	Environmental Sciences for Bioproduction()	Agricultural Soil Science	Production System in Livestock	Food Biochemistry		
			Physics for Applied Biological Science()		Animal Breeding and Genetics	Laboratory and Field Works in Plant Production	Environmental Animal Physiology		
			Introduction to Molecular Biochemistry()		Animal Nutrition	Laboratory and Field Works in Animal Production II	Topics in Applied Animal and Plant Science II		
					Animal Functional Anatomy	Agricultural Plant Production and Biotechnology	Topics in Applied Animal and Plant Science III		
					Introduction to Applied Animal and Plant Science	Animal Physiology and Production			
					Laboratory and Field Works in Applied Animal and Plant Science	Grassland and Feed Science			
						Plant Molecular Biology			
						Topics in Applied Animal and Plant Science I			

Knowledge and understanding regarding the mechanism of animal and plant production in fields and relation between animals and the human society and natural environment.	Introduction to Applied Biological Science()	Research Front of Bioresource Science ()	Introduction to Physiology ()	Plant Nutritional Physiology	Reproductive Biology	Public Health()		
		Research Front of Food and AgriLife Science ()	Environmental Sciences for Bioproduction()	Agricultural Soil Science	Production System in Livestock	Food Hygiene		
		Ethics of Science and Technology()		Animal Breeding and Genetics	Farm Practice	Food Biochemistry		
		Agricultural Production Resources()		Animal Nutrition	Agricultural Plant Production and Biotechnology	Environmental Animal Physiology		
		Seminar in Field Science ()		Animal Functional Anatomy	Animal Welfare	Topics in Applied Animal and Plant Science II		
				Introduction to Applied Animal and Plant Science	Animal Physiology and Production	Topics in Applied Animal and Plant Science III		
					Grassland and Feed Science			
					Plant Molecular Biology			
					Topics in Applied Animal and Plant Science I			
					Seminar in Dairy Field Science			

Ability & skills	Basic communication, information processing, and physical activities	Foreign Languages () ()		Statistics in Biology ()		Reading of Foreign Literature in Applied Animal and Plant Science	Graduate Thesis I ()	Graduate Thesis II ()	Graduate Thesis III ()
		Information and Data Science Courses ()							
		Health and Sports Courses ()							
	Basic experiment abilities and skills required for acquiring expertise				Laboratory and Field Works in Animal Production I	Training for Animal Food Processing	Graduate Thesis I ()	Graduate Thesis II ()	Graduate Thesis III ()
		"Basic Laboratory Work in Chemistry"							
			"Experimental Methods and Laboratory Work in Biology I"						
			Seminar in Field Science ()	Statistics in Biology ()					
				Laboratory Work in General Biology I & II ()					
				Laboratory Work in General Chemistry ()					
				Laboratory Work in General Physics ()					
	Ability for basic biological analysis and evaluation regarding production function of animals and plants in levels of molecule, cell, and individual organism				Laboratory and Field Works in Applied Animal and Plant Science	Laboratory and Field Works in Plant Production			
					Laboratory and Field Works in Animal Production I				

Ability & ski								
	Basic techniques for handling and testing of animals and plants and those for breeding, cultivation, and management				Laboratory and Field Works in Applied Animal and Plant Science	Laboratory and Field Works in Plant Production		
						Laboratory and Field Works in Animal Production II		
						Farm Practice		
						Seminar in Dairy Field Science		
	Ability for basic evaluation of breeding environment in fields of animal and plant production				Laboratory and Field Works in Applied Animal and Plant Science	Laboratory and Field Works in Plant Production		
						Laboratory and Field Works in Animal Production II		
						Farm Practice		
						Seminar in Dairy Field Science		
	Ability regarding scientific English that is required as a basis for understanding technical English manuals and international communication capabilities based on the acquired knowledge and approach method for the field					Reading of Foreign Literature in Applied Animal and Plant Science	Graduate Thesis I ()	Graduate Thesis II ()

Comprehensive capability	Ability to identify issues that he/she should pursue for a specific phenomenon related to animal and plant production, organize his/her own opinion, logically publish them orally and/or in writing, and discuss the topic	Introduction to Applied Biological Science()	Research Front of Bioresource Science ()	Laboratory Work in General Biology I & II ()	Plant Nutritional Physiology	Reproductive Biology	Graduate Thesis I ()	Graduate Thesis II ()	Graduate Thesis III ()
			Research Front of Food and AgriLife Science ()	Laboratory Work in General Chemistry ()	Agricultural Soil Science	Production System in Livestock	Public Health()		
			Ethics of Science and Technology()	Laboratory Work in General Physics ()	Animal Breeding and Genetics	Laboratory and Field Works in Animal Production II	Food Biochemistry		
			Agricultural Production Resources()		Animal Nutrition	Farm Practice	Environmental Animal Physiology		
			Seminar in Field Science ()		Animal Functional Anatomy	Animal Welfare			
					Introduction to Applied Animal and Plant Science	Animal Physiology and Production			
					Laboratory and Field Works in Animal Production I	Grassland and Feed Science			
						Seminar in Dairy Field Science			

(Example) Liberal arts subjects Specialized fundame Specialized subjects Graduation thesis () Required subject () Elective require () Elective subjects

List of Faculty Members of the Applied Animal and Plant Science Program

Name of faculty	Name of program and position	Extension number	Laboratory	Mail address
Naoki Isobe				
Akihiro Ueda				
Taketo Obitsu	Professor			
Toshihisa Sugino				
Rumi Tominaga	Professor			
Takahiro Yonezawa	Professor			tyonezaw
Takashi Umehara				
Shinichi Kawakami				
Yuzo Kurokawa				
Toshinori Nagaoka				
Yoshiaki Nakamura				
Takahiro Nii				
Yudai Inabu				
Mayumi Kikuta				
Naoki Suzuki			Takahiro Nii	
Aira Seo				
Michio Kanechi	Professor			
Koichi Sato	Professor			
Yasunori Shinozuka	Professor			