

THE UNITED GRADUATE SCHOOL OF AGRICULTURAL SCIENCE

GIFU UNIVERSITY (DOCTORAL COURSE) Ver.2





PARTICIPATING NATIONAL UNIVERSITY CORPORATIONS



GIFU UNIVERSITY



Shizuoka University

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From Dean of UGSAS-GU

The United Graduate School of Agricultural Science, Gifu University, Japan, provides the following 3 courses: biological production, biological environment and biological resources. The uniqueness and flexibility of its education system is embodied as a wide variety of subjects under the credit-based system and doctoral dissertation research guidance by multiple supervisors through the synergistic linkage between the Graduate School of Integrated Science and Technology, Shizuoka University and the Graduate School of Applied Biological Science, Gifu University.

We endeavor to cultivate researchers and professional engineers/technologists with abundant knowledge and a broad perspective of agricultural sciences. At the same time, we aim to contribute to the advancement of agricultural science and the development of biological-resource-related industries. Recently, we have enjoyed contributing to the development of agricultural science and its related industries in foreign countries, by actively accepting foreign students who are eager for advanced science and technology in the fields of agriculture, forestry, animal husbandry, and fisheries.

The students participating in this program will belong either to Gifu University or Shizuoka University, depending on their specialties and resource availability.

Currently, our doctoral course keeps a globally-rich environment where international students occupy 50% of its population.

Moreover, we have been adopting various globalizing activities, such as introduction of all-English lectures, operation of overseas lab stations, and networking with the related industries in and out of Japan.



Prof. Masateru Senge
Dean of UGSAS-GU

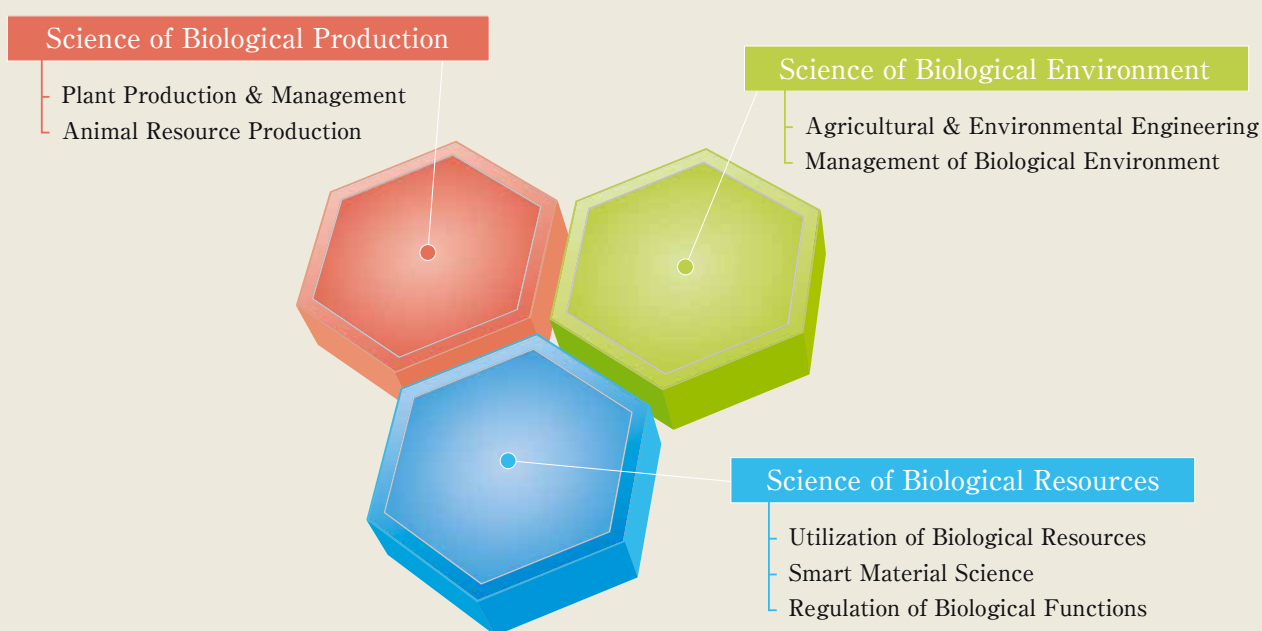


Organization

The United Graduate School is established based on the postgraduate master's course of agricultural science at Shizuoka University, Gifu University, and the associated institution of Gifu University.

The United Graduate School is operated in close alliance and cooperation with the master's course of the two universities. However, it is an independent 3-year doctoral course separate from the master's courses.

The United Graduate School has three courses composed of seven major chairs (Rengo-Koza).



Admission Policy

The United Graduate School provides unique educational programs with a wide variety of subjects under the credit-based system and doctoral dissertation research guidance by multiple supervisors through the synergistic linkage mainly between the Graduate School of Integrated Science and Technology, Shizuoka University and the Graduate School of Applied Biological Science, Gifu University.

The principles of agricultural science are: in an ecological system called Earth, to preserve environment; to develop comprehensive scientific technologies and cultures based on the production of foods and biological materials; and to contribute to the existence and welfare of mankind. Agricultural science is an integrated science based on the relationship between biological production, which is essential to human life, and human society, consisting mainly of biological science, biological resources science, environmental science, life science and social science. (in Charter of Agricultural Science, Japan, 2002)

The Graduate School aims to cultivate researchers and professional engineers/technologists with highly professional ability, abundant academic knowledge and a broad perspective of science related to Biological (animals, plants, and microbial products) Resources, Biological Environment and Biological Resources, and thereby to contribute to the advancement of agricultural science and development of biological-resources-related industries. The Graduate School provides education to allow students to acquire extensive knowledge of agricultural science and to conduct a research on a given subject and seek a solution, and furthermore to develop the ability to solve problems and the ability to discover research subjects that can be exercised in the boundary fields and multidisciplinary fields. The Graduate School also welcomes overseas applicants who are willing to learn and acquire advanced agricultural technologies and science.

Alumni & Alumnae

I am an agricultural engineer working for the National Academy of Agricultural Science (NASS), Rural Development Administration (RDA), in South Korea. Since 2004 I have conducted substantial research related to irrigation and drainage engineering, and I am currently working in the Research Planning and Management Division, NASS, RDA.

When I enrolled in Gifu University, it was quite a challenge for me to understand the cultural differences that I experienced. But my supervisor was considerate, treated me like family, and was even kind enough to teach me about Japanese culture and thought, which helped me adapt to my new circumstances and finish my Ph.D. degree. His careful attention was a great encouragement to me as a foreign student, and he set an example of excellence as an advisor, researcher, mentor, instructor, and role model.

Gifu University supports foreign students through many scholarships and language and orientation programs. Through this brochure, I would like to thank all those involved for guiding and supporting me in the years of my stay at Gifu University.



Sangbong Lee, Ph.D.

(Engineer, Rural Development Administration, South Korea)



From the day I was granted my Ph.D. degree in 2004, my experiences have proved that I absolutely made the right decision to come to the UGSAS-GU for my studies in Agricultural Science. I appreciated and cherished the comprehensive academic training that I received from the dedicated and resourceful professors and members of the Forest Ecology Laboratory, where superb facilities assisted my research. For three years, I learned a great deal both intellectually and practically through the research and the guidance of my supervisor. All that I have achieved now as a university professor is the fruit of my labors at the UGSAS-GU.

I truly believe that continuing your studies here will provide a fascinating academic experience in a campus where the beauty and tranquility of nature will empower your learning beyond your furthest expectations.

Sasitorn Poungharn, Ph.D.

(Lecturer, Chulalongkorn University, Thailand)

I graduated from the UGSAS-GU in March 2008. My concentration was Agricultural and Environmental Sciences, with a dissertation on the role of organic mulch for soil and water conservation. Soon after I graduated, I entered a national selection process for lecturers in Indonesia, and I was selected.

Since December 2008, I have been a lecturer in the Department of Soil Science, Faculty of Agriculture, Sebras Maret University, Indonesia. Our university is located in the historical city of Solo, in the province of Central Java. For the last five years, I have conducted research with colleagues and students, including some Ph.D. students. Most of our research topics have concerned identification of climate change and its impacts on agriculture.

Recently I have collaborated with my former supervisor in research concerning rainwater harvesting for agriculture, an activity funded by the JSPS and the Indonesian government. In this research project, we are involving junior and senior staff members from the UGSAS and the Faculty of Agriculture in Sebras Maret University in order to increase academic exchange and activities in both institutions. I am also currently researching modeling of water management in rain-fed lands and peat lands in Java and Borneo.

I feel very lucky to have studied in the UGSAS for my Ph.D. Even now, as an alumnus, the UGSAS still offers many opportunities to further my career in research and academia.



Komariah, Ph.D.

(Lecturer, Sebras Maret University, Indonesia)



It gives me immense pleasure to write about my experiences as one of the alumni of the UGSAS-GU. I started my journey in this faculty as a Japanese Government scholarship student in 2003 in the laboratory of applied biological chemistry. It was a wonderful journey throughout my student life. I had the opportunity to work in the laboratory where I could utilize my own thinking for designing experiments and setting up unique techniques. I think I had the opportunity to work within the state-of-art facilities available in the laboratory and other common utilities in the campus. The freedom I got during my research work made me more confident and responsible which helped me to finish my job within the stipulated 3 years of time. I also had the opportunity to perform collaborative research work with other established world renowned scientists and researchers. For the prospective students who are carrying on as well as who wish to pursue their higher study under this faculty, it is indeed a great opportunity for you to explore yourself and your abilities, to test your patience, to assess your own self beliefs. Keep discussing your findings with your supervisors and other senior lab mates. I believe that you all would be able to complete your mission under the UGSAS with your hard work and honesty.

A.H.M. Nurun Nabi, Ph.D.

(Professor, University of Dhaka, Bangladesh)

Science of Biological Production

Instruction and research unite a number of disciplines concerning soil fertility management for crops and feeding management of livestock; animal and plant nutrition, protection, breeding and genetics, and product use; and management, economics, and physical distribution in agricultural, forestry, and livestock industries. Topics concern the scientific principles and technologies of these primary industries in all processes leading from plant and animal production to delivery to the consumer.



Plant Production & Management

Multidisciplinary instruction and research focus primarily on processes leading from plant production through delivery to the consumer. These processes comprise three areas: Production, from planting through harvest; Distribution, from shipment through consumer receipt; and Management and economics related to plant production. In the areas of Production and Distribution, topics in instruction and research include adoption of advanced technologies such as bioengineering and agricultural electronics, conservation of genetic resources, genetic improvement of plants, seed and seedling production, production technologies extending to soil fertility management, distribution technologies for harvest products, and distribution systems. In the area of Management and economics, topics in instruction and research include productivity in biological production, sustained improvement of profitability, and improvement of rural living.

Animal Resource Production

The principles of production are explored for various animals exploited directly or indirectly for human welfare, and new technologies are developed, established, and used. Instruction and research are founded on a broad and advanced perspective on topics concerning animal productivity, including animal production functions, efficient utilization of feed, and optimization of feeding management. Areas of particular emphasis include application of bioengineering relating to animal growth, reproduction, and development, and information processing for improved utilization of feed and feed management technologies.



Plant Production & Management

Daimon Syukri

[Indonesia]

My name is Daimon Syukri. I am a junior lecturer at the Department of Agricultural Product Technology, Andalas University, Indonesia.

I just never imagine before that I could continue my study in Japan, in which the country that already known worldwide for its knowledge development.

I would like to deliver my big 'Thank you' to Professor Kohei Nakano for his kindness being my promotor so I could participate as a scholar in United Graduate School of Agricultural Science-Gifu University with MEXT Scholarship.

My research concern is about preventing quality loss of fresh produces in the delivery system from producer to customer. Hopefully, all the knowledge that I gain can be developed and applicable in my home country.



Animal Resource Production

Yuli Yanti

[Indonesia]

I am a lecturer at Sebelas Maret University, Indonesia. I am now a second-year of doctoral course, and my study is now fully funded by the Directorate General of Resources For Research, Technology and Higher Education of Indonesia. After I joined the research student program in Okinawa Japan, I fall in love with this country and want to return here again for study. I chose Gifu University because my supervisor expertise is similar with my study background.

My focus study is on how to increase the utilization of agricultural waste as animal feed. In my country, small-scale farmers using agricultural waste for ruminant feed. Nutrient content of this feed is very low so need a technological approach to increase this value so that livestock production has also increased.

After graduating from Gifu University, I will be returning as a lecturer in Indonesia and share the knowledge with my students and farmers as well. Also, I would make a research collaboration with Gifu University to produce international publications.



Science of Biological Environment

Crucial issues in this area that cannot be ignored, either currently or in long-term perspectives, include development of farmland, forests, and fields that are the basis for biological production; maintenance of these resources in good condition; disaster prevention; and protection from degradation. Special note should be taken that recent international considerations of global-scale environmental problems from a number of perspectives have also included many issues in the agricultural domain. Aspects of this field include investigation of problems in inorganic environments through techniques in physics and chemistry, and ecological mechanisms as the basis for understanding of problems in the biological communities that populate these environments.



Agricultural & Environmental Engineering

Instruction and research cover primarily engineering and planning techniques to manage the soil environment, water environment, living environment, and regional environment in forests, fields, and agricultural land that serve as the base for plant production, and principles and technologies for greater efficiency in work through machinery, and for building a basis for expanding and stabilizing plant production and improving productivity. Specific work concerns long-term, efficient utilization of national resources through conservation, disaster prevention, development, improvement, and management; construction of related facilities; and development and use of machinery to establish basis for plant production and living environment.

Management of Biological Environment

The structure and function of agricultural land, forests and fields, and the ecosystems they encompass are investigated to gain a biological understanding of changes in ecosystems under inorganic and organic environmental parameters that change from one minute to the next. In one aspect, instruction and research cover principles and policies for conservation and efficient utilization based on the organization of such ecosystems. Other aspects focus on plant conservation and the theory and application of equipment and machinery for environmental regulation and for cultivation in artificial environments.



Agricultural & Environmental Engineering

Tharangika Ranatunga

[Sri Lanka]

I come from Sri Lanka. I had been dreaming of studying in Japan since the day I first visited Japan, in 2002. After my graduation in Sri Lanka, I had been struggling over my placement at a University in Japan. With the encounter of Professor Hiramatsu, I was introduced to the BWEL program. I could realize my dream of studying in Japan thanks to this program. Next, I studied for the entrance examination of Masters Course of Environmental science at Gifu University. Currently, I'm studying for my Doctoral course of Biological environment at the United Graduate School of Agricultural science. My research is on investigating the applicability of microbial fuel cell for controlling the process of denitrification in flooded rice soils. Besides this main objective, my research would also help nearing the practical use of microbial fuel cell. I do hope that we can go into the world with much confidence after studying in Japan very much interactively. I'd like to be an environmental scientist in the future.



Management of Biological Environment

Auliana Afandi

[Indonesia]

I am from Indonesia, a tropical country in the south east Asia. I choose to study in Japan because the technology for genetics research here is more advance. Moreover I am so lucky to get support from MEXT scholarship and join the doble degree program between UGSAS and Universitas Gadjah Mada.

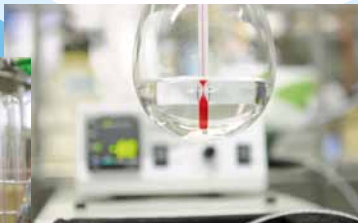
Indonesia is one of the largest pineapple producers in the world and when I studied for my master research on pineapple plantation, I realized that Phytophthora is one of the problems that decreases pineapple production. Considering that, I choose to pursue my PhD on micro satellite of Phytophthora nicotiana as a causing agent of root rot disease in pineapple. Microsatellite markers can help us to track the disease route as well as its source so we can come up with better disease management strategy.

After graduating from UGSAS, I have to continue my study in Indonesia. I am looking forward to become a lecturer to share the knowledge that I gained for elevating the quality of education and research in Indonesia.



Science of Biological Resources

The organization, structure, and function of animal, plant, microbial, and other biological resources and soil, the base of their production, are explored from an interdisciplinary and integrated perspective including physical chemistry, chemistry, biochemistry, and biology. These analyses are the basis for investigating the principles governing bioresources and life functions; pursuit of basic research in bioengineering; understanding of the structure and function of bioresources, including unutilized resources; and instruction and research in the principles and technologies behind more advanced processing and use, discovery of new functions, and bioresource waste processing.



Utilization of Biological Resources

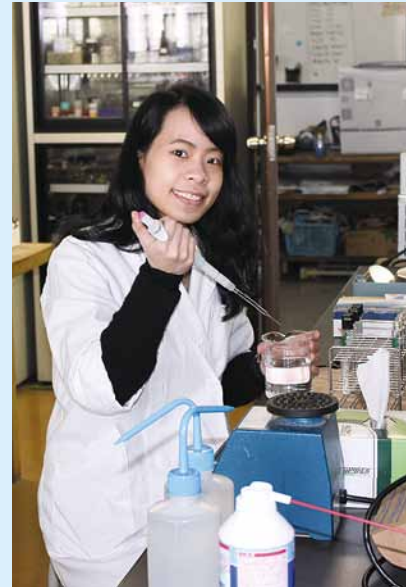
Research focuses on basic issues of biological resource physiology, chemistry, and physicochemical characteristics. A wide variety of perspectives such as those in physiology, biochemistry, chemistry, physics, and engineering are employed to investigate the scientific principles needed to utilize bioresources as food resources, energy resources, and various other resources and materials. These scientific principles form the basis for development and improvement of technologies for more advanced processing, utilization, and preservation of bioresources, including unutilized resources. Instruction and research cover improvement of clothing, foods, and housing and living environments; conversion of bioresources to energy, feed, and fertilizer; and efficient reductive use and waste disposal.

Smart Material Science

Techniques of chemical analysis and chemical synthesis are used to study the structure and function of various materials comprising different natural and synthetic materials for understanding at different levels, including the atomic, molecular, cellular, and histological. Topics investigated also include interactions among such materials, molecular information signaling mechanisms, and expression mechanisms for physiological activity. The chemical principles of life phenomena are explored, and these principles form the basis for instruction and research concerning chemistry-based techniques for more advanced use of bioresources, and technologies for development of materials embodying new physiological functions.

Regulation of Biological Functions

The qualities, structure, and function of microbes, cultured cells, and biofunctional polymers such as proteins and nucleic acids are analyzed in an exploration of the scientific principles applicable to biological functions and their control and use. These scientific principles form the basis for basic research directed toward enhancement and improvement of metabolic regulatory functions and production functions demonstrated by animals, plants, and microbes, and likewise, development of useful biological production systems. In turn, this work is the foundation for instruction and research on biological production technologies utilizing biotechnologies such as genetic recombination, cell fusion, cell culturing, and enzymatic and microbial immobilization.



Utilization of Biological Resources

Methavee Peanparkdee

[Thailand]

I am from Thailand. I graduated master degree from Department of Food Technology, Faculty of Science, Chulalongkorn University. I am interested in the relationship between food and health. When I was master student, I researched about encapsulation of antioxidants from Thai plants which have functional properties of decreasing a risk of some chronic diseases. I expected that the microcapsules from Thai plant extracts could be used for improving human health in the future. For this reason, I started planning to study the PhD program, searched for the information and found that research in this area is very active at Assoc. Prof. Satoshi Iwamoto's group of Gifu University.

I started my PhD program at UGSAS, Gifu University from April 2015. Since I started the PhD program, I have faced many challenges and also got the valuable experiences. I continued researching on microencapsulation of bioactive compounds from Thai riceberry bran together with learning Japanese language and applying for the scholarship. My research aims to increase the value of Thai rice bran by developing the novel application. In this study, microencapsulation process is used to protect bioactive compounds from environmental factors, extend shelf life and improve the release-properties of those compounds. For Japanese language, I have an opportunity to prepare the scholarship documents in Japanese and take Japanese class at Gifu University. I have passed the Japanese language proficiency test (JLPT) in level N2 on December 2015.

For my future, I would like to continue my research in this field and try to achieve my expectation. I hope that produced microcapsules can be used in food and pharmaceutical industry for improving human health.

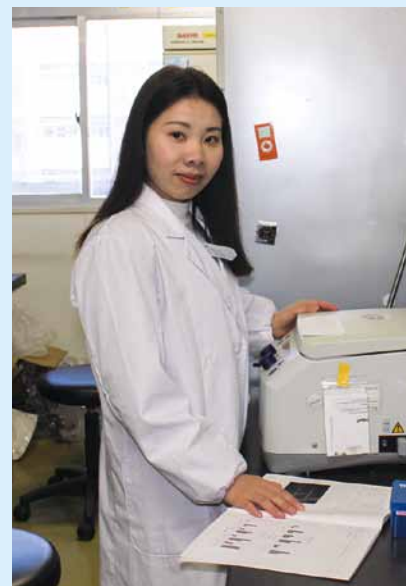
Smart Material Science

Nahoko Yagami

[Japan]

I registered in Science of Biological Resources major in Gifu University. Currently I am working in the area of carbohydrate chemistry in laboratory of bio-active molecular science. I decided to enter the doctoral course, because I learned delight of studying chemistry through my research. It is a great opportunity for me to find new knowledges and discoveries, thus I consider myself fortunate to learn a lot every day in this course. And in the much friendly and high academic environment in our laboratory, held several group discussions as well as literature review meetings which increased my passion towards chemistry.

During my doctoral course I have been involved in the development of novel stereoselective glycosylation approaches and total synthesis of glycolipid. Stereo control of glycosylation is more difficult and important task for a carbohydrate chemist. After the finishing the course, I want to go abroad to study chemistry more deeply and become a world-class scientist.



Regulation of Biological Functions

Wu Liujie

[China]

I am WU LIUJIE from south of China where the winter is not so cold. Thus, the moment of first snowing in January 2016 impressed me deeply. Before deciding to come to Japan, I also considered a number of aspects. As a master student in China, I majored in Plant Nutrition Science. However, with respect to Plant Nutrition, I know clearly that I prefer the direction of Molecular Biology. Luckily, during the communication with my supervisor in China, I was fortunate enough to know some information about this lab where I study with now. So, I checked a lot of research content and results done by this research team in recent years, then I knew that is it.

This is my second year to study in the UGSAS, and my research topic focused on profiling the Al-responsive signaling pathway regulating ALMT1 by chemical genetic. As we know, acid soil stress is one of the major limited factors affecting the growth and yield of numbers of crop species worldwide. It induces a complex syndrome, such as ion toxicities (e.g. aluminum toxicity) and nutrient deficiency (e.g. phosphate deficiency) among lots of crop plants. Besides, aluminum (Al³⁺) toxicity is the most harmful factor in terms of yield loss among these factors. ALMT1 (ALUMINUM-ACTIVATED MALATE TRANSPORTER1), a malate transporter, transports malate into the rhizosphere, plays a critical role in protecting the root apex from Al toxicity. In my study, we interested in the molecular mechanisms of these regulation systems which are poorly understood.

In the future, I hope that I can be a researcher or teacher in a university or other research center. So that I can have a chance to tell them what I have learned in Japan, not only the knowledge but also teamwork and trust in each other.



Fields of Instruction and Research Themes of Professors

Course	Major Chair [Rengo-Koza]	PROFESSOR	Field of Instruction and Research		Major Subject Offered for Examination
			Research Field	Research Theme	
Science of Biological Production	Plant Production & Management	MATSUBARA, Yoichi (Gifu University)	Vegetable Crop Science	Biological and physiological study and the application to sustainable culture and environmental stress tolerance in vegetable crops	Vegetable Crop Science
		SUZUKI, Katsumi (Shizuoka University)	Protected Horticulture and Vegetable Crop Science	The study of suitable and high-quality vegetable production in protected horticulture	Protected Horticulture and Vegetable Crop Science
		KIRIIWA, Yoshikazu (Shizuoka University)	Vegetable Crop Science	The study on physiological response to abiotic stress in vegetable crop production	Vegetable Crop Science
		YAHATA, Masaki (Shizuoka University)	Pomology	Study on physiology of fruit set and Development of high quality fruit tree using chromosome engineering technique	Pomology
		SHIMAZU, Teruaki (Gifu University)	Enviromental Control in Plant Production Systems	Development of environmental control techniques for plant production and its application to plant science	Greenhouse and Biosystems Engineering
		OBA, Shinya (Gifu University)	Plant Growth Diagnostics	Analysis of economical plants by genetic and eco-physiological aspects to develop the technology for plant production	Plant Eco- physiology
		MAEZAWA, Shigenori (Gifu University)	Food Distribution System	Empirical study for mechanism of food distribution	Food Distribution System
		YAMAWAKI, Kazuki (Shizuoka University)	Science and Technology for Harvested Horticultural Food Products	Studies on keeping and raising quality in harvested fruits and vegetables	Science and Technology for Harvested Horticultural Food Products
		NAKANO, Kohei (Gifu University)	Postharvest Engineering	Development of the quality preservation theory and technology in agricultural produces	Postharvest Technology
		KATO, Masaya (Shizuoka University)	Postharvest Physiology	Physiology, biochemistry, and molecular biology in postharvest horticultural crops	Postharvest Physiology
	Animal Resource Production	TOGASHI,Koichi (Gifu University)	Research on Local Industries and Corporations	Local industries and community development	Regional Policy for Industrial Development
		SHIBAGAKI,Hiroshi (Shizuoka University)	Agricultural Management and Economics	Theoretical and positive studies on agricultural cooperatives and agricultural finance	Agricultural Management and Economics
		SASANAMI, Tomohiro (Shizuoka University)	Molecular Cell Biology	The studies on the molecular mechanism of egg envelop formation and fertilization in birds	Cell Biology
		TORIYAMA, Masaru (Shizuoka University)	Cell Biology	The studies on the mechanism of sea urchin egg mitosis	Molecular Biology of the Cell
		YOGO, Keiichiro (Shizuoka University)	Reproductive Biology	Molecular and cellular biology of development and differentiation of mammalian germ cells	Reproductive Biology

Course	Major Chair [Rengo-Koza]	PROFESSOR	Field of Instruction and Research		Major Subject Offered for Examination
			Research Field	Research Theme	
Science of Biological Production	Animal Resource Production	IWASAWA, Atsushi (Gifu University)	Chemical Endocrinology	Biochemistry of animal endocrine system and metabolism	Chemical Endocrinology
		MATSUMURA, Shuichi (Gifu University)	Animal Genetics	Studies on evolutionary history and genetic diversity of animals	Animal Molecular Genetics
		DOI, Osamu (Gifu University)	Animal Reproduction	Physiology and technology of reproduction in animals	Physiology of Animal Reproduction
		YAYOTA, Masato (Gifu University)	Animal Nutritional Ecology	Nutritional ecology of ruminants and application to animal production	Animal Nutrition
		YAMAMOTO, Akemi (Gifu University)	Animal Nutrition	Nutrients requirement and nutritional evaluation for feedstuffs in monogastric animal	Animal Nutrition
		NINOMIYA, Shigeru (Gifu University)	Animal Welfare and Behaviour	Applied Ethology and animal welfare	Animal Welfare and Behaviour
		KOYA, Yasunori (Gifu University)	Animal Reproductive Biology	Studies on evolution of reproductive mode in fishes using functional morphology of gonad and reproductive behavior, and their application for aquaculture	Animal Reproductive Biology
Science of Biological Environment	Agricultural & Environmental Engineering	HIRAMATSU, Ken (Gifu University)	Environmental Hydraulics	Management of water environment and aquatic ecosystem in rural area	Environmental Hydraulics
		ONISHI, Takeo (Gifu University)	Hydrology	Understanding the mechanism of water and material cycles and evaluation of the anthropogenic impact on these cycles	Hydrology
		ITO, Kengo (Gifu University)	Aquatic Environment	Management of environment and ecosystem conservation in paddy field	Ecology and Civil Engineering
		NISHIMURA, Shinichi (Gifu University)	Engineering for Agricultural Structures	Safety and effective use of agricultural structures for water supply	Engineering for Agricultural Structures
		IMAIZUMI, Fumitoshi (Shizuoka University)	Erosion Control Engineering	Management of sediment and water in mountainous catchments	Erosion Control Engineering
		MATSUI, Tsutomu (Gifu University)	Crop Production Science	Sustainable crop production	Crop Production Science
	Management of Biological Environment	TSUCHIDA, Koji (Gifu University)	Insect Ecology	Studies on the genetical variation within insect populations	Insect Ecology
		MUKAI, Takahiko (Gifu University)	Biogeography	The studies of the biodiversity in space and through time, and of the conservation methods	Biogeography
		TAGAMI, Yohsuke (Shizuoka University)	Applied Entomology	Development of insect pest control technique using insect-symbiont relationship	Biology of insect symbiosis
		KAGEYAMA, Koji (Gifu University)	Fungal Ecology	Development of molecular detection technique of oomycetes and clarification of their ecology using the technique	Fungal Ecology
		SUGA, Haruhisa (Gifu University)	Molecular Plant Pathology	Stuies on evolution, ecology and pathogenicity of plant pathogens	Molecular Plant Pathology
		TSUDA, Satoshi (Gifu University)	Plant Ecology	Ecological studies on vegetation structure and dynamics	Plant Ecology
		SAWADA, Hitoshi (Shizuoka University)	Applied Ecology	Plant population biology and adaptation to defoliation and disturbance	Applied Ecology
		YAMASHITA, Masayuki (Shizuoka University)	Ecological Genetics	Invasion ecology of exotic plants and weeds	Invasion Ecology



Course	Major Chair [Rengo-Koza]	PROFESSOR	Field of Instruction and Research		Major Subject Offered for Examination
			Research Field	Research Theme	
Science of Biological Environment	Management of Biological Environment	INAGAKI, Hidehiro (Shizuoka University)	Agroecology, Weed science	Studies on assessment of biodiversity in rural area and ecological management of weed	Weed science
		MUKAI, Yuzuru (Gifu University)	Forest Genetics	Population genetics and eco-physiology analysis of mating systems and mechanisms for maintenance of genetic diversities in woody plants	Genetics and Eco-physiology
		KAWAKUBO, Nobumitsu (Gifu University)	Plant Evolutionary Ecology	Evolutionary Studies on Flowering and Pollination	Evolutionary Biology
		OHTSUKA, Toshiyuki (Gifu University)	Ecosystem Ecology	Carbon cycling and carbon sequestration in terrestrial ecosystems	Carbon cycling in terrestrial ecosystems
		MIZUNAGA, Hiromi (Shizuoka University)	Silviculture	Rehabilitation of forest ecosystem	Ecological Management of Forest
		AWAYA, Yoshio (Gifu University)	Forest Resource Management	Plant remote sensing and forest management	Ecosystem Metrology
		MURAOKA, Hiroyuki (Gifu University)	Ecosystem Physiology	Ecophysiological study from whole-plant to landscape in terrestrial ecosystems	Ecosystem Physiology
		ISHIDA, Megumi (Gifu University)	Montane Ecology and Management	Conservation and management of mountain zone	Montane ecology and management
		WEI, Yongfen (Gifu University)	Environmental Monitoring	Monitoring and assessment of mass circulation in basin environment	Environmental Monitoring
Science of Biological Resources	Utilization of Biological Resources	MITSUNAGA, Tohru (Gifu University)	Phytochemistry	Structural analysis and functional elucidation of plant secondary metabolites	Natural Products Chemistry
		TERAMOTO, Yoshikuni (Gifu University)	Chemistry of Biomass-based Materials	Material functionalization of cellulose, related polysaccharides, and wood components	Chemistry of Biomass-based Materials
		YANASE, Emiko (Gifu University)	Bioorganic Chemistry	Structural analysis and chemical study of plant polyphenols	Bioorganic Chemistry
		KAWAI, Shingo (Shizuoka University)	Lignin Biochemistry	Biosynthesis and biodegradation of lignin and related compounds	Lignin Biochemistry
		YAMADA, Masaaki (Shizuoka University)	Polymer Composite Material	The development and performance evaluation of new wood adhesives	Wood Adhesion
		KOJIMA, Yoichi (Shizuoka University)	Wood Biomass Science	Studies on the effective use of woody biomass	Wood Biomass Science
		KOBAYASHI, Kenji (Shizuoka University)	Timber Structures	Studies on seismic performances of timber structures	Timber Structures
		KAMAYA, Yasushi (Shizuoka University)	Environmental Toxicology	Environmental Fate and Biological Effects of Organic Contaminants	Ecotoxicology
		IWAMOTO, Satoshi (Gifu University)	Physical Chemistry and Engineering for Food Materials	Physicochemical studies of phase and/or glass transitions of food colloids for high value-added food production	Colloid Science for Food Materials
		NISHIZU, Takahisa (Gifu University)	Food Process Engineering	Research in food physics and engineering analysis of food process operations	Food Process Engineering
		YABE, Tomio (Gifu University)	Carbohydrate Biochemistry	Biochemistry and molecular cell biology of glycans for molecular structure and biological functions	Glycobiology

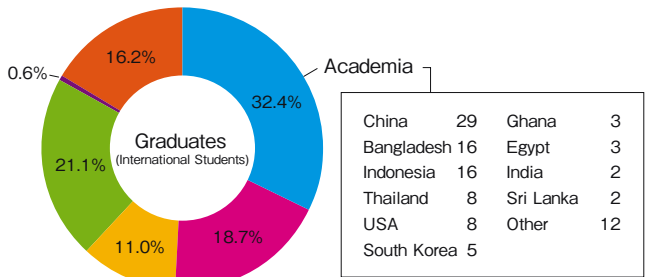
Course	Major Chair [Rengo-Koza]	PROFESSOR	Field of Instruction and Research		Major Subject Offered for Examination
			Research Field	Research Theme	
Science of Biological Resources	Smart Material Science	ISHIDA, Hideharu (Gifu University)	Glycotechnology	Chemical biology of bioactive glycoconjugates	Chemical Biology
		ANDO, Hiromune (Gifu University)	Chemistry Featuring Carbohydrates	Molecular biology-oriented chemical synthesis of carbohydrates and application of their functions to medicinal chemistry	Chemistry on Synthesis and Application of Carbohydrates
		IMAMURA, Akihiro (Gifu University)	Applied Carbohydrate Chemistry	Chemical synthesis of biologically-relevant carbohydrate molecules and functional glyco-probes	Applied Carbohydrate Chemistry
		*KAMEYAMA, Akihiko (Gifu University)	Analytical Glycotechnology	Structure-function analysis of glycans and its applications to pharmaceuticals including products for medical diagnosis	Analytical Chemistry for Glycoconjugates
		UENO, Yoshihito (Gifu University)	Nucleic Acid Chemistry	Design and chemical synthesis of functional nucleic acids for gene therapy and genetic diagnosis	Chemistry of Nucleosides, Nucleotides and Nucleic Acids
		YOSHIMATSU, Mitsuhiro (Gifu University)	Life Science Organic Chemistry	Synthesis of bioactive compounds using a new methodology and their biological functions	Organic Chemistry
	Regulation of Biological Functions	NAKAGAWA, Tsutomu (Gifu University)	Applied Biochemistry	Biochemistry and molecular cell biology of enzymes and proteins, and their application	Applied Biochemistry
		IWAHASHI, Hitoshi (Gifu University)	Applied Microbiology	Elucidation and utilization of stress response from microbe to higher organisms	OMICS Biology
		SUZUKI, Tohru (Gifu University)	Genome Microbiology	A new aspect of microbiology from genome science and bio-informatics	Genome Microbiology
		NAKAMURA, Kohei (Gifu University)	Microbial Molecular Ecology	Fundamental and applied microbial ecology in anaerobic environments	Microbial Molecular Ecology
		OGAWA, Naoto (Shizuoka University)	Environmental Microbiology	Analysis of the function of environmental microbes	Environmental Microbiology
		SHIMIZU, Masafumi (Gifu University)	Plant Pathology	Studies on plant probiotics and plant- microbe interactions in the rhizosphere	Plant Pathology
		*CHIBA, Yasunori (Gifu University)	Microbial Glycobiology	Production technologies of glycan- engineered proteins and materials by microbes	Microbial Glycobiology
		NAKAGAWA, Tomoyuki (Gifu University)	Food and Nutritional Biochemistry	Molecular cell biology and molecular breeding of yeasts, Development of industrial enzymes	Food Microbiology
		EBIHARA, Akio (Gifu University)	Enzyme Science	Studies on structure and function of enzyme	Enzyme Science
		NAGAOKA, Satoshi (Gifu University)	Functional Food Science	Biochemical and molecular biological studies on the physiological functions of food components	Functional Food Science
		MORITA, Akio (Shizuoka University)	Plant Nutrition	Nutritional physiology of plants and plant cells	Plant Nutrition
		KOYAMA, Hiroyuki (Gifu University)	Plant Cell Technology	Molecular physiology and molecular breeding of acid soil tolerant plants	Plant Cell Technology
		YAMAMOTO, Yoshiharu Y. (Gifu University)	Plant Genome Biology	Study of environmental adaptation and evolution in plants	Plant Genome Biology

※ indicates guest professors from the National Institute of Advanced Industrial Science and Technology(AIST). Please note that in the case you prefer to study under the supervision of them, you will conduct research mainly at the AIST.



Career Options upon Completion

As of April, 2016		
Profession	Graduates	Graduates (International Students)
Academia	130	106
Governmental / Public Sector (Researcher)	151	61
Private Sector (Researcher)	149	36
Other	141	69
Independent	3	2
Under Survey	80	53
Total	654	327



Support for Campus Life

Employment-based Assistance

Research Assistant (RA)

Employed as aide in research projects, approximately ¥50,000 monthly assistance provided.
Approximately 59 applications in AY2015, approximately 73 applications in AY2016; all accepted.

Teaching Assistant (TA)

Acts as aide in midterm presentations and other remote learning, approximately ¥10,000 monthly assistance provided.
Approximately 17 applications in both AY2015 and AY2016; all accepted.

Scholarship Opportunities

Throughout a year, there are twelve kinds of scholarships available; eight of them are to be paid ¥80,000 or more per month.
Furthermore, application for Japanese Government Scholarship is available to all students once a year.

Participating Universities

(Shizuoka University & Gifu University)



Shizuoka University

Graduate School of Agriculture, Shizuoka University (Master's Degree Program)

The Graduate School of Agriculture regards 21st century agriculture as having a critical role in preserving the environment, and strives to continually enrich its educational and research activities. The Shizuoka Campus hosts such joint research and education facilities as the Institute for Genetic Research and Biotechnology and the Center for Instrumental Analysis, which are equipped with the most advanced experimental apparatus. The School carries out highly advanced research in an ideal environment for agricultural research.

Symbiosis and Bioscience Courses offered: · Agricultural Bioscience · Human and Environmental Science	This major responds to the need for productive activities that allow sustainable development reflecting environmental considerations. The curriculum merges substantial portions of existing concentrations in Bioproduction Science and Human and Environmental Science, and by studying bioproduction technologies as well as the environment, concentrators gain greater specialization in each area. Instruction and research seek to cultivate high-level researchers and professionals who have an unprecedented familiarity with specialized areas even beyond those where they may be grounded in either "production" (agricultural bioscience) or "environment" (human and environmental science). Examples could include pesticide researchers with deep expertise in an area such as environmental microbes, agricultural managers knowledgeable in genetic manipulation, and habitat coordinators knowledgeable in plant cultivation or pest control.
Applied Biochemistry Courses offered: · Applied Biochemistry	This concentration addresses efficient use of microbial, plant, and animal resources to develop high value-added products and also seeks cellular-, molecular-, and genetic-level understanding of control mechanisms for a variety of functions embodied by organisms. Instruction and research reflect an international purview of advanced scientific principles and technologies applicable to bioscience and biotechnology.
Environment and Forest Science Courses offered: · Forest Research Environmental Studies · Living Spaces Environmental Studies	This concentration comprises two tracks: Forest Research Environmental Studies and Living Spaces Environmental Studies. Instruction and research incorporate techniques from a wide variety of basic science and applied science fields to facilitate understanding of the diverse functions of forests; promotion and sustained utilization of those functions; and advanced, efficient use of wood-based materials in particular. Instruction imparts broad, advanced knowledge of forest science and wood science and effective use of this understanding, with a goal of cultivating high-level specialists and technical professionals capable of problem-solving from a global perspective.



GIFU UNIVERSITY

Graduate School of Applied Biological Sciences (Master's Degree Program)

The School seeks students who have an understanding of the scientific principles that serve as a foundation within the Department, as well as specialized skills and practical training. The School cultivates specialists who have an even greater specialized knowledge of scientific principles and technologies to promote the sustainable existence of humankind and improve its living environments, or to apply the scientific principles and technologies of the biological and life sciences to bioindustries.

Division of Applied Life Science

Molecular Life Science	Within this course, two groups work together to advance instruction and research, one working from the genetic or proteinic level in pursuit of a systematic understanding of the diverse functions embodied in life forms ranging from microbes to higher organisms, and another seeking a molecular-level understanding of organisms and their constituents, for application of results in health, environmental, and other fields closely concerned with the lives of people.
Life Science for Foods	Food is the most basic determinant of human health and requires a comprehensive understanding from production to consumption. Through the development of useful food resources and an understanding of food nutrition and its diverse functional qualities, we seek to elaborate the role of food in human health and to develop production, processing, and distribution technologies based on an advanced knowledge of related quality and safety.

Division of Agricultural Science

Plant Production	Plant production faces crucial issues such as food problems accompanying global environmental changes and the globalization of society. Through instruction and research at various sites, and from the molecular level to that of ecology and regions, the Course cultivates professionals to solve these problems and contribute to the building of sustainable and prosperous societies.
Animal Science	The ideal of instruction and research is to create sustainable and more prosperous relationships between humans and livestock, companion animals, and wild animals. Based on scientific principles concerning animal life and physiology, the Course cultivates professionals with advanced, specialized knowledge and technical skills applicable to "production", "management", and "conservation" of animals.
Field Ecology	The Course addresses the major themes of "ecological conservation" and "coexistence between nature and humans." Specialists in habitat investigation and conservation planning are cultivated through greater depth and practice in technical fieldwork designed to put knowledge of biology, ecology, and other such fields into actual use.
Ecological and Environmental Management	The natural environment and the agricultural and rural environments that it benefits are a complexly intertwined ecology of physical elements present in forms such as soil and water, chemical elements in the form of cyclical materials, biological elements in the form of living animals and plants, and various phenomena, including human activities. The Course cultivates professionals able to solve problems arising in this complex system and contribute to environmental conservation and restoration and greater resilience in agricultural and forest industries.



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