

Outline of Graduate School of Agriculture, Kyoto University for 2025

Division of Agronomy and Horticultural Science

Research fields	No.	Research contents	Research staff
Crop Science	101	Development of theories for efficient and stable production of agricultural crops in harmony with the environment Physiological and ecological research on the characteristics of crops, especially in relation to the interaction of gene and environment on yield and quality Development of technologies to evaluated crop performance in the field	Keisuke KATSURA Tomoyuki TANAKA Kazuki TANIYOSHI
Plant Breeding	102	Search and isolation of useful genes which are the basis for breeding staple plants such as rice, wheat and soybeans, and physiological analysis of their mechanism of phenotype expression Investigation of the activation mechanism of the transposable element of rice, specifically MITE, isolation of genes by transposon-tagging, and development of molecular markers for useful genes	Shuhei NASUDA Masayoshi TERAISHI Yasir S.A.Gorafi Koichi YAMAMORI
Vegetable and Ornamental Horticulture	103	Physiological and ecological researches on the production and quality control of vegetables and ornamental plants, with special emphasis on the development of environmental control techniques, production and propagation techniques for disease-free plants and new breeding techniques by tissue culture	Yoshiyuki TANAKA Sho OHNO
Pomology	104	Physiological and ecological investigation of the whole lifecycle of fruit trees, specifically flowering, pollination physiology, growth and ripeness of fruits; systemic biology of genetic resources of fruit trees; and proliferation and breeding of fruit trees by utilizing a tissue and cell culture system	Ryutaro TAO Hisayo YAMANE Soichiro NISHIYAMA Masafumi OOMORI Tzu-fan HSIANG
Weed Science	105	Weed biology for the establishment of rational weed management programs. Ecological and genetic analyses on the evolution of life history strategies of weeds, the origin and reproductive biology of herbicide resistant biotypes of weeds and alien weeds, crop-weed complex through introgression, and man's impacts on the diversity of weed flora and genetic structure of weed populations.	Shunji KUROKAWA Yoshiko SHIMONO Masataka IZUMI
Plant Production Systems	106	Basic and empirical research aimed at clarifying current problems in agricultural production systems in Japan from the perspective of the mechanisms and functions of an agricultural ecosystem, conserving the ecosystems and creating a highly-productive and sustainable agricultural production system	Ryohei NAKANO (Concurrent) Hiromo INOUE Yu IWAHASHI
Food Quality Design and Development	107	Research on the relationship between food quality and components such as allergenicity, physicochemical characteristics, and physiological functionality of agricultural crops. Research on the quality design and development of components for expanding the uses of agricultural products.	Nobuyuki MARUYAMA
(Uji) Quality Analysis and Assessment	108	Quality analysis and assessment of food crops and processed food materials Food science of emulsions and gels Mechanism of oral sensory reception mainly for taste sensation Analysis of aroma compounds of foods and horticultural plants to reveal their physiological effects	Akira OIKAWA Yukako HAYASHI Misaki ISHIBASHI
(Farm) Plant Production Control Science	109	Physiological, ecological, genetical, and molecular biological basic research and applied research in the agricultural field on important elements for increasing productivity and high-quality production with a decrease in environmental loads among agricultural and horticultural crops	Ryohei NAKANO Kyoka NAGASAKA Takahiro MAKI Yu KINOSHITA Kazuki MURATA

(Uji) Uji Campus Gokasho, Uji-shi, Kyoto

(Farm) Experimental Farm of Graduate School of Agriculture, Kyoto University Shiroyamadai, Kizugawa-shi, Kyoto

Division of Forest and Biomaterials Science

Research fields	No.	Research contents	Research staff
Forest Resources and Society	201	Forest governance and socio-economic studies on forestry and environmental services of forest. Specifically, studies focusing on sustainable forest management, biodiversity conservation, carbon sequestration, customary use of forest, rural livelihood and use of non-timber forest	Satoshi TACHIBANA Daisuke NAITO
Tropical Forest Resources and Environments	202	Research on forest ecology, forestry and environmental issues in the tropics. Specifically, functional ecology of forest plants, seedling regeneration and maintenance mechanism of tropical forests, plant-soil interactions, restoration and reforestation of degraded tropical forests, options for sustainable timber production and land-use systems, responses of tropical forests to climate change, and the environmental services of tropical forests	Kaoru KITAJIMA Hiroko KUROKAWA Komei KADOWAKI*1 Takayuki KANEKO
Forest Ecology	223	Studies on the nutrient-use efficiency of trees, tree eco-physiology, functions of biological diversity, and soil nutrient dynamics to understand the mechanisms of long-term maintenance of forest ecosystems. Studies on the mechanisms of the maintenance of biological diversity, and the biological interactions between insects and plants in forest ecosystems. Ecological studies to achieve	Yusuke ONODA Shinichi TATSUMI Ryota AOYAGI*1
Forest Utilization	203	Research on the evaluation of multilateral functions of forests and sustainable utilization of those functions. Specifically, evaluation of the structural development of forests and carbon accumulation in a forest ecosystem, the ecophysiology of tropical and temperate forests, and the investigation of spatio-temporal variation of forest resources using tree ring and stable isotope data, etc.	Masako DANNOURA Minori TOKITO
Forest Biology	204	Ecological research on plants in forests, the structure and function of communities, the genetic structure of wild populations, forest damage caused by wild animals and insects, and damage prevention and forest protection. Conservation genetics and ecology of forest plants and animals	Yuji ISAGI Atsushi TAKAYANAGI Michimasa YAMASAKI
Landscape Architecture	205	Principles, landscape ecology, greenery engineering, landscape planning and environmental design for the protection, conservation, regeneration and creation of landscapes (the nature and culture of the land) Researches on gardening culture, urban revegetation, forest landscapes, the conservation of natural environment and damage mitigation, etc.	Junichi IMANISHI Katsue FUKAMACHI Ryo NUKINA
Erosion Control	206	Researches on sediment production and discharge phenomena such as landslide and debris flow, rainfall infiltration and outflow phenomena and their impacts on forests, measures against sediment-related disasters in mountainous terrain, slope greening, and mountain stream environments	Ken'ichiro KOSUGI Shusuke MIYATA Naoya MASAOKA
Forest Hydrology	224	Gas exchange processes between forest and the atmosphere from the photosynthesis and transpiration on an individual leaf scale to the water and carbon fluxes at an ecosystem scale. Hydrological and hydrochemical processes in the forest, soil and stream system of a small catchment. Evaluating forest influences on the watershed management and forest-climate interactions based on the field observations in temperate and tropical forests.	Yoshiko KOSUGI Daniel EPRON Ayaka SAKABE
Biomaterials Design	207	Fundamental investigation and application of physical properties of biomaterials Specifically, 1) Searching physical properties of biomaterials and designing new materials, 2) Scientific studies on the affinity of humans and biomaterials	Masashi NAKAMURA Miyuki MATSUO
Wood Processing	208	Basic and applied researches on the processing and utilization of wood. Specifically, the mechanism of wood cutting, the non-destructive inspection of wooden materials and structures in production and in service, involving the evaluation of wood surface using sensory test and pattern recognition, the analysis of moisture migration in wood drying, detection of physical properties and biodegradation, using acoustic, microwave, millimeter wave and X-ray CT.	Koji MURATA Yoshiyuki YANASE Yutaka SAWADA
Fibrous Biomaterials	209	Development and application of advanced utilization methods of biomass The creation of cellulosic functional materials with magnetic processing Crystal structure analysis by X-ray, neutron and solid nuclear magnetic resonance for polysaccharides and physiologically active substances using magnetically aligned samples	Masahisa WADA Kayoko KOBAYASHI

Division of Forest and Biomaterials Science

Research fields	No.	Research contents	Research staff
Tree Cell Biology	210	Ultrastructure of lignified secondary wall Cytochemical investigation on cell wall formation in woody plants Biosynthesis and accumulation of cell wall components and their functional analysis Topochemical analysis of cell walls and their utilization for biomass resources The relationship between morphological characteristics and solid state properties of biomaterials	Junji SUGIYAMA Arata YOSHINAGA Tatsuya AWANO
Chemistry of Composite Materials	211	Creating excellent functional high-polymer materials from biomass such as wood, cellulose, chitin, and glucose via diverse chemical composition techniques, Specifically, designing and developing biodegradable plastic, liquid crystals, optical materials, adhesive materials, foam and molded materials, magnetic materials, soft materials (gels), etc.	Hiroshi KAMITAKAHARA Kazuki SUGIMURA
Chemistry of Biomaterials	212	Basic and applied chemistry of biomaterials, mainly wood components. (1) Chemical analysis of biomaterials (chemical structure elucidation of lignin carbohydrate complex (LCC) etc.); (2) Development of new reaction of biomaterials (regio-selective reaction of cellulose, electro-oxidation of lignin etc.); (3) Functionalization of biomaterials (preparation of cellulosic LB film for photo-current generation system, new cellulose derivative for drug delivery system etc.).	Toshiyuki TAKANO Yoshikuni TERAMOTO
Forest Biochemistry	225	Molecular and biochemical studies on recycling system of forest biomass by natural organisms. Basic and applied sciences of mushroom-forming fungi with respect to their unique properties such as lignin-degrading system and simple carbohydrate modification of protein. Molecular breeding of bamboos to create a new plant resource, by modifying flowering regulation and/or sugar translocation. These researches are carried out in collaboration with Laboratory of Environmental Interface Technology of Filamentous Fungi (Endowed Chair).	Yoichi HONDA Takehito NAKAZAWA Moriyuki KAWAUCHI*2
(FSERC) Forest Information	213	Researches on analyses of environmental changes in forested watersheds, the evaluation of multifunctional roles of forests, and the optimal management of forest resources based on the scientific and sociological valuations. Specifically on 1) mechanisms of material outflow from forests and evaluation of their impacts on water systems, 2) the management of forest resources, wood distribution and consumption processes, 3) the interaction between plant and soil and 4) the proper management based on the ecological knowledge.	Ryunosuke TATENO Kazuya KOBAYASHI Nao SAKANOE Shunsuke MATSUOKA Asami NAKANISHI Yoriko SUGIYAMA
(FSERC) Silviculture	214	Research on biogeochemical cycle in forest ecosystems and the application of ecosystem approaches toward the conservation and development of sustainable and resilient forest ecosystems. Researches on various problems with the production and maintenance of forest resources, such as timber production, and the mechanism of maintenance and restoration of forests. Researches on various problems relating to the preservation, regeneration and adaptation of environmental slope-related species.	Naoko TOKUCHI Hisashi HASEGAWA Takeshi ISE Masae ISHIHARA Manqing ZHANG Hanami SUZUKI
(RISH) Material Biology	222	Synthetic biology and biochemistry of wood formation, and multi-scale structural analysis of wood using scattering, diffraction, and microscopic techniques, which aim for understanding its excellent physical properties in a view of structure. Humanistic research on the relationship between humans and wood using natural scientific methods.	Tomoya IMAI Suyako TAZURU Kei'ichi BABA
(RISH) Active Bio-based Materials	216	Nanostructural analysis of biological resources for the utilization of wood materials Development of high-performance nanomaterials for vehicles and information technology devices using plant biomass resources Solid state properties of wood under high pressure and high temperatures Temperature and humidity control functions of wood in a housing environment Analysis of crystal structure of polysaccharides and their derivatives Analysis of structural functions using computational chemistry, and upgrading their performance with a computer-aided molecular design Deeply understanding the mechanism of how trees support their huge body	Shinsuke IFUKU Soichi TANAKA
(RISH) Sustainable Materials	217	Exploring the structure and function of lignocellulosic biomass, and developing environmentally friendly materials that take advantage of its characteristics. In particular, new wood-based materials using unutilized lignocellulosic biomass, development of novel adhesion system for decarbonization, elucidation of aging of wood, development of smart materials inspired by the structure and mechanics of wood, wood-based materials design with the help of AI etc.	Kenji UMEMURA Shuoye CHEN

Division of Forest and Biomaterials Science

Research fields	No.	Research contents	Research staff
(RISH) Innovative Humano- habitability	218	Research and development of the integrated wood protection system Feasibility of wood-degrading agents for environmental bioremediation and new-energy options Diversity of wood-deteriorating organisms in the tropical plantation forests Microtextural analysis of carbonized wood and development of non-platinum cathode catalysts for fuel cells Development of functional materials by fast pyrolysis Diversity of wood degrading organisms in tropical planted forests	Wakako OHMURA Toshimitsu HATA
(RISH) Timber Science & Engineering	221	Development of high performance residential and non-residential timber building made of wood and wood-based composite materials Evaluation of mechanical properties of wooden structural components and connections Examination of bio-deterioration effect on structural performance of timber buildings	Hiroshi ISODA Takafumi NAKAGAWA Ai TOMITA

*1 The Hakubi Center

*2 Laboratory of Environmental Interface Technology of Filamentous Fungi

(FSERC) Field Science Education and Research Center

Forest Station

Ashiu Forest Research Station Ashiu, Miyama-cho, Nantan-shi, Kyoto

Hokkaido Forest Research Station Tawa, Shibecha-cho, Kawakami-gun, Hokkaido

Wakayama Forest Research Station 76 Kamiyukawa, Aridagawa-cho, Arida-gun, Wakayama

Field Station

Kamigamo Experimental Station 2 Kamigamo Motoyama, Kita-ku, Kyoto

Tokuyama Experimental Station Tokuyama-hachikubo, Sunan-shi, Yamaguchi

Kitashirakawa Experimental Station Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto

(RISH) Research Institute for Sustainable Humanosphere Gokasho, Uji-shi, Kyoto

Division of Applied Life Sciences

Research fields	No.	Research contents	Research staff
Cellular Biochemistry	301	Researches to understand how mammalian cells sense and respond to the extracellular environment and organize multicellular organism using methods of cell biology, molecular biology, biochemistry, and structural biology. Cell adhesion and extracellular matrix molecules, cytoskeletons, signaling molecules, and membrane transporters, which are related to various diseases, are studied, focusing on various cellular functions such as cell proliferation and differentiation.	Noriyuki KIOKA Yasuhisa KIMURA Mito KURODA Atsushi KODAN *1
Biomacromolecular Chemistry	302	Correlation between dynamic structure and functional expression of biological macromolecules based on atomic-level measurements, elucidation of mechanisms of gene expression, and basic and applied research on life, health, and food	Kenji SUGASE Ayako FURUKAWA Masatomo SO
Bioregulation Chemistry	303	Organic chemistry and biochemistry of biologically active substances and their structure-activity relationships. Search for bioactive peptides from venomous organisms. Structural analysis of peptides using mass spectrometry. Chemical synthesis of peptides. Action mechanism of insecticidal, antimicrobial, and plant defense-inducing peptides.	Masahiro MIYASHITA
Chemical Ecology	304	Characterization of chemical factors related to interactions among organisms and analysis of their ecological significance The main research themes are chemical analyses of physiologically active substances such as insect pheromones, and chemoeological investigation of semiochemicals affecting the mutual interactions between insects and plants Clarification of growth regulation and environmental adaptation mechanisms of insects by hormones	Naoki MORI Hajime ONO Naoko YOSHINAGA
Plant Nutrition	305	Researches on molecular mechanisms of plant metabolism that convert inorganic nutrients into organic substances, especially on photosynthesis. Inorganic chemistry, biochemistry, structural biology, and molecular biology to understand plant physiological phenomena, such as environmental stress responses. Studies for crop growth promotion, and production of useful substances using plant metabolic functions.	Kentaro IFUKU Masaru KOBAYASHI Kumiko OCHIAI Kaori KOHZUMA
(Uji) Bioenergy Conversion	306	Molecular cell biology research on the mechanism of metabolic stress response in yeast Researches on signal transduction and gene expression	Yoshiharu INOUE
Fermentation Physiology and Applied Microbiology	307	Screening and application of microbial functions Researches on clarifying microbial metabolism and biosynthesis at enzyme, gene and molecule levels Metabolic engineering for lipids, nucleic acids, amino acids, organic acids, and sugars productions Chiral technology utilizing microbial enzymes Bioenergy production Development of ecosystem controlling technology These researches are carried out in collaboration with Laboratory of Industrial Microbiology (Contributed Chair)	Jun OGAWA Shigenobu KISHINO Akinori ANDO Makoto UEDA *2 Ryotaro HARA *2
Microbial Biotechnology	308	Search for new cellular regulatory functions based on cellular metabolism, gene expression, dynamics of cell structures, and their application to useful metabolite and protein production, innovative resource development and environmental conservation technology.	Yasuyoshi SAKAI Hiroya YURIMOTO Kosuke SHIRAIISHI
Bio-Analytical and Physical Chemistry	309	Clarification of the functions of biodynamic molecules and molecular aggregates relating to energy conversion and information conversion, and application of these functions Oxidation and reduction enzymes, electron transport reactions, photosynthetic reactions, biological membrane iron transportation, biosensors, biofuel cells, etc.	Osamu SHIRAI Yuki KITAZUMI Keisei SOWA

Division of Applied Life Sciences

Research fields	No.	Research contents	Research staff
Biofunction Chemistry	310	Bioorganic chemical researches to elucidate the mechanisms of enzymes closely related to mitochondrial functions, such as the respiratory enzymes and membrane transporters, based on the design synthesis of chemicals possessing unique physiological activities and the functional characterization of them.	Hideto MIYOSHI Masatoshi MURAI Takahiro MASUYA
Applied Structural Biology	311	X-ray crystal structure analysis and protein engineering of food related proteins and enzymes such as egg albumins, amylase, transglutaminase and serine protease inhibitors The mechanisms of protein folding and unfolding The mechanism of large protein crystal growth for neutron diffraction study	Kenji SUGASE (Acting) Kimihiro MIZUTANI
(ICR) Chemistry of Molecular Biocatalysts	312	Studies on the biosynthesis, transport, perception and signaling of plant hormones that regulate growth, development and environmental responses of plants using biochemical, bioorganic chemical and genetic approaches Identification of new plant hormone-like compounds suggested by studies on mutants Manipulation of plant growth and development by using plant hormone-related genes and chemicals	Shinjiro YAMAGUCHI Kiyoshi MASHIGUCHI Kengo HAYASHI
(ICR) Molecular Microbial Science	313	Studies on the molecular basis of environmental adaptation of extremophilic microorganisms and their application Mechanistic analysis of enzyme reactions and their application Biochemical analysis of specific functions of lipids and proteins in biological membrane and the mechanism of their biosynthesis Mechanistic studies of biogenesis of bacterial extracellular membrane vesicles and their application	Tatsuo KURIHARA Jun KAWAMOTO Takuya OGAWA
(RISH) Plant Gene Expression	314	Isolation and functional analysis of genes related to the transport and accumulation of valuable natural products (secondary metabolites) in higher plants Molecular breeding of plants with these genes Molecular mechanisms of the interaction between plants and rhizosphere microbes Development of plants producing valuable compounds	Akifumi SUGIYAMA Ryosuke MUNAKATA
(RISH) Metabolic Science of Forest Plants and Microorganisms	315	Chemical, biochemical, molecular biological and system biological researches of regulatory mechanisms of lignocellulosic biomass formation in plants Creation of highly durable trees, grass plants which are adaptable to biorefinery, and trees adaptable to a recycling-oriented society Biosynthesis of antitumor lignans Elucidation of supramolecular structures of lignocellulose	Yuki TOBIMATSU Kanade TATSUMI
(RISH) Biomass Conversion	316	Fundamental and applied studies of conversion of lignocellulosic biomass into biofuels, chemicals and functional substances with microorganisms, enzymes and chemical reactions in electromagnetic field Molecular biological and biochemical studies of basidiomycetous fungi for biorefinery and bioremediation; Regulation mechanism of extracellular free radical reactions through secondary metabolites and enzymes Expression and catalytic mechanism of lignin-degrading enzymes Analysis of superfine structure of plant cell wall components and their interaction with cellulolytic enzymes and peptides	Takao KISHIMOTO Hiroshi NISHIMURA Takahito WATANABE

(Uji) Uji Campus Gokasho, Uji-shi, Kyoto

(ICR) Institute for Chemical Research Gokasho, Uji-shi, Kyoto

(RISH) Research Institute for Sustainable Humanosphere Gokasho, Uji-shi, Kyoto

*1 KUIAS, iCeMS

*2 Research Unit for Physiological Chemistry

*3 Laboratory of Industrial Microbiology (Contributed Chair)

Division of Applied Biosciences

Research fields	No.	Research contents	Research staff
Plant Genetics	401	Heredity of higher plants, specifically, cytogenetics, population genetics, evolutionary genetics and molecular genetics. Genetic researches on the dynamics of genes and genomes related to environmental adaptation and biotic interaction, intraspecific differentiation, and new species formation.	Kentaro YOSHIDA Yoshihiro INOUE
Crop Evolution	402	Researches on crop evolution and plant genetic resources Genetic diversity of crops and closely related wild plants Ethnobotany and Archaeobotany	Ryohei TERAUCHI Yasuo YASUI Toshiyuki SAKAI
Plant Pathology	403	Biochemical and molecular biological researches on phytopathogens and researches on the interactions between pathogens and plants. Specifically, researches on the infection mechanism of filamentous fungi, bacteria and RNA viruses, and the mechanism of plant defense against pathogens.	Yoshitaka TAKANO Kazuyuki MISE Akira MINE
Insect Ecology	404	Research on the ecology and evolution of insects. Research on social ecology of social insects, mechanisms controlling reproductive differentiation, interactions between insects and microorganisms, and evolutionary dynamics of sexual and asexual reproduction. We are also actively engaged in applied development rooted in basic discoveries, such as the development of next-generation technologies that use termites to produce food from unused plant biomass.	Kenji MATSUURA Mamoru TAKATA Kazuya KOBAYASHI (Field Science Education and Research Center)
Insect Physiology	405	Molecular endocrinology of insects, focusing especially on hormonal control of molting and metamorphosis Chemical ecology, physiology, and evolution of insect sex pheromones Development of novel genetic tools for genome engineering of non-model insects	Takaaki DAIMON Takahiro OHDE
Animal Breeding and Genetics	406	Molecular biology, molecular genetics, statistical genetics, and systems biology of qualitative and quantitative traits in animals Elucidation of the genetic factors and molecular pathogenesis of diabetes Elucidation of the molecular mechanism of intramuscular fat deposition in humans and cattle Establishment of methods for genetic evaluation, breeding, and preservation of animal resources and rare animals	Norihide YOKOI Yukio TANIGUCHI Shinichiro OGAWA
Reproductive Biology	407	Elucidation of the regulatory mechanism of development from fertilization to implantation in mammals. Elucidation of the regulatory mechanism of gene expression involved in germ cell formation. Studies on the influence of environmental factors on the properties of early embryos and their control.	Shuntaro IKEDA Shinnosuke HONDA Yoichiro HOSHINO (Livestock Farm)
Nutritional Science of Animals	408	Defensive responses against nutritional variations in the liver, muscle, and adipose tissue and cells. Elucidation of the mechanism underlying adaptive metabolism of micronutrients (vitamins and minerals). Nutritional physiology of beef cattle. Establishment of nutritional science to improve the stress-induced adverse effect. Basic research to improve the health status of companion animals.	Masayuki FUNABA Shozo TOMONAGA
Animal Physiology and Functional Anatomy	409	Research on the anatomy, histology and pathophysiology of animals Clarification of the effects of highly functional elements, environmental alteration and pollution on physiological and reproductive functions Researches on functional morphology and its regulation of mammalian reproductive organs	Takeshi OHTA Miki SUGIMOTO Kinuko UNO
Animal Husbandry Resources	410	System research on beef cattle production Research on the conservation of indigenous animal resources Research on the utilization of livestock and feed in tropical regions Utilization of unused resources Research on the use of sensing technologies for animals	Hajime KUMAGAI Kazato OISHI Yoko TSUKAHARA

Division of Applied Biosciences

Research fields	No.	Research contents	Research staff
Fisheries and Environmental Oceanography	411	Researches on the aquatic animals' behavior using biologging Researches on the nutrient transport, which allows sustainable production in coastal areas Researches on the mechanisms of eutrophication and hypoxia (oxygen depleted water) Researches on the marine ecosystems Researches on the physical-biological interactions in the sea	Hiromichi MITAMURA Kotaro ICHIKAWA Shiho KOBAYASHI Satoko S. KIMURA (Center for Southeast Asian Studies) Junichi TAKAGI (Distinguished Doctoral Program of Platforms)
Marine Stock-Enhancement Biology	412	Physiology and ecology of teleosts, as a basis for stock-enhancement of marine biological resources in a broad sense. Developmental and endocrinological research on flatfish metamorphosis. Studies on morphological abnormality of artificially reared juveniles of teleosts. Molecular genetic research on species diversity, population structure, and interspecific hybridization. Field research on temporal changes of larval fish fauna in a specific area.	Masatomo TAGAWA Kouji NAKAYAMA
Marine Molecular Microbiology	413	Molecular microbiological research on the basis for the search for novel marine prokaryotes including (hyper) thermophiles, eukaryotic microorganisms, and viruses, and the development of useful gene resources such as next-generation extreme enzymes and transcriptional control mechanisms. Molecular ecological research on marine microorganisms and viruses based on metagenomic analysis.	Takashi YOSHIDA Ryoma KAMIKAWA
Marine Environmental Microbiology	414	Genome analysis and genetic engineering for the production of useful substances such as ω 3 fatty acids, carotenoids, and biofuels by microalgae and Labyrinthulea Researches on physiology and ecology of microbes living in extreme environments Researches on molecular mechanisms underlying symbiosis	Shigeki SAWAYAMA Satoshi NAKAGAWA
Marine Bioproducts Technology	415	Screening of novel bioactive components contributing to our healthy life style from oceanic lives and elucidation of their functional mechanisms based on cellular and molecular biology, especially clarification of effects of marine compounds on the lipid metabolism through nuclear receptors Recent research focuses on preventing obesity, allergy and cardiovascular diseases, and maintaining sound skin	Tatsuya SUGAWARA Yuki MANABE
Marine Biological Function	416	Development and utilization of genetic engineering for marine organisms. Elucidation of health promoting functions of aquatic products. Functions of marine/aquatic organisms from molecules to individuals are integrated for exploring new academic field.	Kenji SATO Masato KINOSHITA Tomoko ASAI
(FSERC) Coastal Fisheries Ecology	417	Early life history of fish and their habitats; Ontogeny of behavior in fish and invertebrates; Systematics and biogeography of fish and aquatic invertebrates; Ecology of zooplankton and environmental fluctuations; Environmental DNA; Learning and memory of fish and aquatic invertebrates; Symbiotic ecology of estuarine gobies; Impact of terrestrial areas on coastal ecosystems through rivers	Reiji MASUDA Yoshiaki KAI Keita SUZUKI Yumi HENMI

Laboratory of Crop Evolution Plant Germ-plasm Institute Mozume-cho, Muko-shi, Kyoto

(FSERC) Field Science Education and Research Center

Maizuru Fisheries Research Station..... Nagahama, Maizuru-shi, Kyoto

Livestock Farm Kyotanba-cho, Funai-gun, Kyoto

Division of Environmental Science and Technology

Research fields	No.	Research contents		Research staff
Comparative Agricultural Science	501	Comparative Agricultural Science	Complex research on various aspects of human-caused environment systems including food, life and the environment, and their mutual relationships across a broad spectrum. For example, genetic improvement in consideration of the domestic and overseas diversity of various livestock as well as regional peculiarities, development and application of measures evaluating land as a socio-ecological system for sustainable land use, elucidation of the mechanism of fruit maturation and development of its applied technology, etc.	Takeshi MIYAKE Hitoshi SHINJO Ayako KATAYAMA
Tropical Agriculture	505	Biology and ecology	Clarification of environmental factors, especially water environment, which affect the agricultural productivity in the tropics, The impacts of farming conditions and environment on the eco-physiology of tropical crops, such as upland crops, vegetables and fruits, and their mutual interactions, Research on agricultural ecology in the tropics, Analyses on land use and farming systems in the tropics, The origin and dissemination of tropical crops	Hirokazu HIGUCHI Tomohiro KONDO
Soil Science	506		Dynamics of elements in soil ecosystems, Soil forming processes and classification methods from the tropical to the frigid zones, Interactions of plants and soil in natural ecosystems and cropland ecosystems, Evaluation of soil fertility, Development of environmentally sound land utilization and soil management, Methods making great use of environmental information with GIS and geostatistics	Shinya FUNAKAWA Tetsuhiro WATANABE Makoto SHIBATA
Terrestrial Microbial Ecology	507		Researches on the nature of interactions between microbes and their biotic and abiotic environments in agricultural ecosystems. Special attentions are given to microbe-host interactions and molecular and cellular studies of parasites and symbionts in agricultural and forest plant. These researches are carried out in collaboration with Laboratory of Environmental Interface Technology of Filamentous Fungi (Endowed Chair).	Chihiro TANAKA Akira YOSHIMI Yuko TAKEUCHI Kenya TSUJI*1
Ecological Information	508		Basic and applied research on the ecological control of agricultural pests, especially phytophagous mites and thrips, in agricultural ecosystems. The main research topics include interactions among host plant-pest-predator, and ecology and utilization of natural enemies.	Norihide HINOMOTO Shuichi YANO
Agricultural Facilities Engineering	509	Regional environmental engineering (Water, soil and greenery systems)	Optimization of efficiency and sustainability of irrigation structures through evaluating their safety, fragility and functionality, which is oriented toward comprehensive stock management of the infrastructures for agriculture, incorporating the disciplines of soil and fluid mechanics, environmental science and computational engineering. Development of numerical methods for data assimilation, soil-fluid interaction and granular assemblage.	Kazunori FUJISAWA Jia GUO Shoichi KIYAMA
Water Resources Engineering	510		Fundamental and applied researches on the planning and management of water resources for agriculture, focusing on sustainable development of irrigation systems as well as conservation and restoration of sound agricultural water environment. Computational fluid dynamics approaches are used for numerical reconstruction of hydraulic phenomena and for identification of optimal management strategies.	Masayuki FUJIHARA Koichi UNAMI Junichiro TAKEUCHI
Hydrological Environment Engineering	511		Fundamental and applied researches on irrigation and drainage, hydrology, and soil physics for the sustainable agriculture and the conservation of rural environment through water management. Field work and analysis for the understanding and the meaningful human management of water, hydrogeochemical, and energy cycles in agro-ecosystem.	Kimihito NAKAMURA Takehide HAMA
Rural Planning	512		Development of theories and methods on rural planning and rural improvement related to rural land use, infrastructure for agricultural production, infrastructure for rural living environment, conservation of natural environment, conservation of rural landscape and so on as well as practical researches on rural revitalization.	Emi TAKEYAMA Kenichiro ONITSUKA Akiko HIGASHIGUCHI
(Institute for Integrated Radiation and Nuclear Science) Radiation Control	516		Research on safety management of the environment around nuclear and radiological facilities to protect the local environment. In particular, research is conducted on the release of environmentally hazardous materials, including radioactive materials, into the environment, the dynamics of environmentally hazardous materials in the atmosphere, water, and soil, etc., and their effects on the human environment. Conduct fundamental and applied research to assess risks and manage the facility and the environment as a comprehensive system.	Yoko FUJIKAWA Hiroshi YASHIMA

Division of Environmental Science and Technology

Research fields	No.	Research contents		Research staff
Agricultural Systems Engineering	513	Regional environmental engineering (Food and energy systems)	System analysis of food production and biomass utilization from the viewpoint of biocircular economy, optimization of resource circulation system by methane fermentation, etc., and environmental impact assessment, considering human and natural environment. Cultivation forecasting models and pesticide application simulations based on data science. Research on elucidation of plant physiological mechanisms using closed-type plant factories.	Ryozo NOGUCHI Juro MIYASAKA Katsuaki OHDOI Ayana ITO
Field Robotics	514		Development of agricultural machinery and robots to produce food Researches on machine intelligence for agricultural robot Application of variable control technology with smart machine Remote sensing to make a diagnosis of crop growth	Michihisa IIDA Masahiko SUGURI Ryohei MASUDA
Bio-Sensing Engineering	517		Development of non-destructive evaluation of agricultural products and precision aquaculture and livestock, and creation of next-generation food preservation technologies based on understanding water dynamics in cells and tissues.	Naoshi KONDO Keiichiro SHIRAGA

Institute for Integrated Radiation and Nuclear Science Asashiro-nishi, Kumatori-cho, Sennan-gun, Osaka

*1 Laboratory of Environmental Interface Technology of Filamentous Fungi (Endowed Chair)

Division of Natural Resource Economics

Research fields	No.	Research contents	Research staff
Agri-food System Management	609	1) Management and sustainability of farm/ farming household, food system, and agribusiness 2) Coordination of price and quality of agricultural/ livestock products 3) Roles of local agricultural organizations, cooperatives, and NGO/NPO 4) Systems to support agriculture (fair trade, CSA, Teikei, and CSR/CSV/SDGs) 5) Consumers' perception and behavior/ Safety and risk management of food etc.	Hideyuki TSUJIMURA Yayoi KITO
Farm Managerial Information and Accounting	602	1) Managerial development, management control, management information, and accounting structure in family-run, joint management, corporate management and community-run farming 2) Development of agricultural service and service business bodies 3) Agricultural human-resourcing, career establishment and the development of managerial competency 4) Theoretical and empirical researches on joint businesses combining agriculture, commerce and industry, agri-food industrial clusters, etc.	Shusuke MATSUSHITA
Regional Environmental Economics	603	Theoretical and empirical researches on relations between resource environments and agriculture/forestry in the world, sustainable development, and dynamic optimisation 1) Basic theory of regional environmental economics 2) International comparison of regional environmental economics 3) Linkage of trade liberalization and regional industries	Kei KAJISA Jinhu SHEN
Agricultural and Environmental Policy	604	Theoretical and econometric researches on 1) food supply and demand balance in Asian countries, 2) land rental markets in agriculture, 3) mechanism design of agricultural and environmental policies, 4) rural producer organizations, 5) economic evaluation of environment, and 6) institutional analysis of common pool resource management.	Shinichi KITANO
Forest Policy and Economics	610	Theoretical and empirical researches on domestic and overseas forest and forestry policies, problems with the supply and demand of timber and wood products, economic analysis of timber-related industries, the timber trade and the global environment, social economic problems in farming and mountain villages, global warming and forests, biodiversity conservation policy, national park management, etc.	Koichi KURIYAMA Yohei MITANI
International Rural Development	606	Theoretical and empirical researches on 1) agricultural development, 2) poverty alleviation, 3) production and food system of agricultural products, 4) farm economy, 5) rural institutions and organizations, in developing worlds or at a development stage, using micro economics, comparative institutional analysis, econometrics, and field survey.	Ken MIURA Yoshiaki NAKADA
Comparative Agricultural History	607	Comparative history of Japan and other countries/regions on 1) farming and agricultural structure, 2) agricultural policy and farmer's movement from 1931 to 1961, 3) agriculture-forest resource development in the total war system. Social and environmental history on German agriculture and its rural community in 20 centuries	Atsushi ITO Rinko TOKUYAMA
Philosophy of Agricultural Science	608	Theoretical, empirical and comparative researches on emerging challenges we face when pursuing sustainability of agriculture, food production and consumption, and rural societies in developing and developed countries from philosophical, sociological and ethical perspectives.	Kenta SAKANASHI Hart N. FEUER

Division of Food Science and Biotechnology

Research fields	No.	Research contents	Research staff
Enzyme Chemistry *	701	Elucidation of the relationship between structure and function of enzymes including protease, amylase, reverse transcriptase, and aminoacyl tRNA synthetase; Tailoring of enzyme function and controlling of enzyme reaction; Screening of enzyme inhibitors and elucidation of their inhibitory mechanisms; Application of enzymes and inhibitors in food and medical technologies	Kiyoshi YASUKAWA Teisuke TAKITA
(Uji) * Food Chemistry	709		
Organic Chemistry in Life Science	703	Chemical synthesis and functional analysis of various proteins (enzymes) related to lifestyle-related diseases such as cancer and Alzheimer's disease, and the development of therapeutic and preventive drugs targeting these diseases; Investigation and analysis of the mechanisms of functional substances which prevent these lifestyle-related diseases, found in foods; Total synthesis of bioactive natural products related to foods	Chihiro TSUKANO Kazuma MURAKAMI
Nutrition Chemistry	704	To elucidate the mechanisms that control eating behavior, we incorporate various techniques used in biological sciences, such as neuroscience, endocrinology, molecular biology, genetics. The current topics are as follows: homeostatic regulation of nutritional preference, neurocircuits that regulates food preference, and the mechanisms for perception and recognition of food aromas in mammals.	Tsutomu SASAKI Satoshi TSUZUKI Sho MATSUI Yasuo OGURI
(Uji) * Molecular Function of Food	705		
(Uji) Physiological Function of Food	706	Nutritional and physiological researches on interactions between food ingredients and living bodies: Nutritional physiology and neuroscience concerning exercise and central fatigue. Searches for physiological functions of orally active short peptides derived food proteins, which act on the nervous, gastrointestinal, cardiovascular, and immune systems, and applications of them to functional materials matched each life stage. Physiological and behavioral researches on the taste and palatability of foods	Kazuo INOUE Kousaku OHINATA Tsuyoshi GOTO Haruya TAKAHASHI Takumi YOKOKAWA
Bioengineering	707	Elucidation of the relationship between the structures of food macromolecules (proteins, polysaccharides, and colloidal dispersion) and the physiological functions in the gastrointestinal tract such as organoleptic function and mucosal immunity. Development of food processing by using subcritical fluid and nano-technology. Elucidation of mechanisms of taste signaling. Visualization of physicochemical information inside food and design of food function based on the information.	Fumito TANI Kentaro MATSUMIYA Takashi KOBAYASHI Takenobu OGAWA
(Uji) Basic and Applied Molecular Biotechnology	708	Interactions between microbes and animals/plants, microbial chemotaxis, molecular biology of microbial ecosystems in fermented foods, structural biology of microbial enzymes and transporters, microbial responses to gases (nitrogen and oxygen), screening and functional analysis of microbes and enzymes, and their application to food and environmental areas, production of biofuels and chemicals by synthetic biology, dynamics of microbial cell membrane	Wataru HASHIMOTO Kohei OGURA

(Uji) Uji Campus Gokasho, Uji-shi, Kyoto

* No recruitment for 2025

Affiliated Institutions

Name of facilities, etc.	Research and business contents	Research staff
Livestock Farm	Practical education on production of beef cattle. Research on artificial reproductive technology of beef cattle. Research on improvement of beef cattle fattening. Research on health and reproductive management of beef cattle using sensing technology.	Yoichiro HOSHINO
International Exchange Section	Offering support for international researchers and students in the Faculty/Graduate School of Agriculture: orientations, Japanese language class, lectures given in English, newsletters, consultation service Providing opportunities for international exchange: visiting researcher program, welcome parties, study trips, seasonal and traditional events	Koichi KURIYAMA Takeshi MIYAKE Hitoshi SHINJO Ayako KATAYAMA

Livestock Farm Kyotanba-cho, Funai-gun, Kyoto