

Laboratories, Areas of Research, and Staff

Department	Laboratory	Area of Research	Staff			
			Professor	Associate Professor	Lecturer	Assistant Professor
1. Forest and Envioronmental Resources Sciences	1. Resources Cycling in Pedosphere	Cycles of carbon, nitrogen, and trace elements in pedosphere and related environments. Chemical structure, function, and dynamics of soil organic matter, in particular humic substances.	WATANABE, Akira 2028.3Retirement			
	2. Plant-Soil Systems	Studies on nutrient dynamics in forest ecosystems. Our specific focus is to evaluate forest health by disentangling tripartite interactions among plant, soil, and microbes.		TANIKAWA, Toko		
	3. Forest Hydrology and Disaster Mitigation Science	Research for elucidating atmosphere-forest interaction, hudrological cycle, sediment dynamics, and disaster volnearbility of local comunity in regional and watershed scales. Research and its social implementation for sustainable resources management is included.	GOMI, Takashi	KOTANI, Ayumi		
	4. Forest Ecology	Our laboratory conducts a wide range of research in forest ecology, forest genetics, and forest ecophysiology, with particular emphasis on the structure, dynamics, and functioning of tree communities, as well as the genetic diversity, reproductive ecology, ecophysiology, and biomass production of tree populations.	TOMARU, Nobuhiro 2029.3Retirement	NAKAGAWA, Michiko		
	5. Forest Protection	Forest entomology focusing on insect-fungus and insect-plant interactions. Forest ecosystem conservation based on the management of biological communities.	KAJIMURA, Hisashi		TOKI, Wataru	
	6. Forest Resource Management	Research on development of cutting edge measurement technology of forest, construction of theory concerning forest resource management, development of future planning and evaluation method of forest management.	YAMAMOTO, Kazukiyo	YAMADA, Yusuke		
	7. Forest Resources and Society	Studies on forest management policy for realizing both forest conservation and improvement of local livelihoods, forest certification, participatory forest management, community forestry and timber procurement strategies of enterprise	HARADA, Kazuhiro	IWANAGA, Seiji		
	8. Forest Chemistry	Organic chemical, biochemical, and analytical chemical studies on the formation process, structure, and advanced utilization of woody biomass.	FUKUSHIMA, Kazuhiko 2027.3Retirement	AOKI, Dan		
	9. Biomass Resource Utilization	Organic chemical, biochemical and histochemical studies on the isolation and structures, biosynthesis and distribution of wood extractives.		IMAI, Takanori		
	10. Wood Physics	Generation processes of growth stress and wood properities during tree growth, Growth and maturation of tropical plantation species, Analysis of reaction wood formation, Physical and mechanical properties of wood materials.	YAMAMOTO, Hiroyuki 2027.3Retirement	YOSHIDA, Masato		WAN, Hang
	11. Timber Engineering	Mechanical durability in structural use of wood and wood-based materials, Analysis of mechanical behavior in timber structure, Quality-of-material distribution and the plan for demand and supply of forest resources, Wood utilization in urban design.	YAMASAKI, Mariko			ANDO, Kosei 2029.3Retirement
	12. System Engineering for Biology	Studies on nondestructive measurement system and manufacturing process for biological resources, as well as the utilization of data science.	TSUCHIKAWA, Satoru 2029.3Retirement	INAGAKI, Tetsuya		MA, Te

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2. Plant Production Sciences	13. Plant Physiology and Morphology	Studies from both aspects of structure and function on functional differentiation of plant cells and tissues, and response and tolerance to environmental stresses.	TANIGUCHI, Mitsutaka 2028.3Retirement	MITSUYA, Shiro		
	14. Plant Genetics and Breeding	Breeding, molecular genetical, molecular biological, and physiological researches related to the evolution, morphogenesis, development, and environmental stress tolerance of cultivated plant species.	NAKAZONO, Mikio	TAKAHASHI, Hirokazu		AGATA, Ayumi
	15. Crop Science	Studies on physiological and ecological characteristics related to crop photosynthesis and resource acquisition (water, nutrients, etc.) for crop production and improving its sustainability		YANO, Katsuya		
	16. Horticultural Science	Physiological, biochemical, and molecular biological approaches to clarify the characteristics and growth of horticultural crops, i.e. flowers, vegetables, and fruit trees, to improve their quality and productivity.	SHIRATAKE, Katsuhiro			
	17. Plant Pathology	Physiological, biochemical and molecular-biological researches on defense mechanisms of plants against plant pathogens, and interactions of plant pathogens and beneficial environmental microorganisms with host plants. Development of biocontrol measures and understanding of its mechanisms.	TAKEMOTO, Daigo	CHIBA, Sotaro		SATO, Ikuo
	18. Information Sciences in Agricultural Lands	Studies to improve agricultural production by analyzing information from field (crop DNA sequences, morphology, physiological characteristics, yield, soil, environment, etc.) by means of informatics/ data science	MURASE, Jun	DOI, Kazuyuki		NISHIUCHI, Shunsaku SAWADA, Kozue***
	19. Food Economics	Economic/Sociological analysis on food system, agricultural production and rural development with the policies and institutions applied.		ISAKA, Yumi		MIURA, Satoshi 2029.3Retirement
	20. Agroinformatics and Phenomics	Advancing crop production science by integrating plant science with agroinformatics through innovations in phenomics.		SUGIURA, Daisuke		
	21. Plant Gene Function	Studies on plant gene function and its application.	ASHIKARI, Motoyuki	NAGAI, Keisuke		TAKAGI, Hiroshi***
	22. Developmental and Systems Plant Biology	Florigen function in the shoot apical meristem of plants. Root tissue structures that contribute to plant growth and adaptation to abiotic stress.	TSUJI, Hiroyuki	YAMAUCHI, Takaki		SATO, Moeko
	23. Plant Genomics and Breeding	Studies on plant genomics and breeding to solve various problems of modern society, i.e. environment, energy, food problems, etc.	SAZUKA, Takashi			OKADA, Satoshi
	24. Environmental Systems Biology	Research aimed at understanding, predicting, and controlling the environmental response of organisms, using high-throughput measurements and large-scale data analysis.	NAGANO, Atsushi J.			LEE, Hayoung
	25. Tropical Bioresources	Exploring and evaluating the traits of tropical plant resources for sustainable agricultural development in the tropics responding to diversification of food demand and climate change (drought, saline stress, flooding), and utilization of low-temperature plasma for agricultural practices.	EHARA, Hiroshi 2028.3Retirement			NAKATA, Mana
	26. Genetic Information for Bioresources	Aiming at stable crop production under climate change, we conduct research on the extraction and utilization of genetic information related to useful traits from bioresources for agricultural practices.	INUKAI, Yoshiaki			
	27. Practical Studies in Africa	To improve crop production in Africa, we promote an integrated process from environmental response analysis to the development and field application of varieties and technologies. By linking scientific knowledge to on-site validation and extension, we pursue the social implementation of our research.		MAKIHARA, Daigo		
	28. Practical Studies in Asia	Research on agriculture, rural development, and natural resource management to improve livelihoods, reduce poverty, and enhance food security in Asian countries.		ITO, Kasumi		

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3. Animal Sciences	29. Animal Genetics and Breeding	Studies on the genetic basis of qualitative and quantitative traits in mammals and birds; evolutionary genetics research of animals using genetic engineering such as genome editing; evaluation, conservation and utilization of animal genetic resources; and development of new laboratory animal models for human disease and biological functions.	SUMIYAMA, Kenta	ISHIKAWA, Akira		YAMAGATA, Takahiro TANABE, Akira
	30. Genome and Epigenome Dynamics	Epigenetic regulatory systems for transposons and genes in mammals. Epigenome regulation of meiosis. Genome-epigenome interactions during evolution using primate iPS cells. Epigenetic mechanisms underlying sex determination in insects. Mechanism of cancer cell growth inhibition by activation of transposons.	ICHIYANAGI Kenji			OHTANI, Hitoshi
	31. Animal Morphology	Formation and deformation of the traits in vertebrates. Viral endogenization and the roles of the viral-derived element in vertebrates. Transgenerational epigenetic inheritance (TEI).	HONDO, Eiichi			IIDA, Atsuo
	32. Animal Integrative Physiology	Understanding the regulatory mechanisms of circadian, lunar and seasonal rhythms in vertebrates. Development of transformative bio-molecules that improve animal production and human health. Studies on physiological regulation of gene expression and release of growth factors in birds.	YOSHIMURA, Takashi	OHKAWA, Taeko	NAKAYAMA, Tomoya**	TSUKADA, Akira
	33. Animal Reproduction	Basic studies on the neuroendocrinological mechanism regulating animal reproduction and its application to animal production and drug discovery.		UENOYAMA, Yoshihisa INOUE, Naoko		
	34. Animal Nutrition	Studies on the metabolic properties of nutrients (amino acids and vitamin C etc.) and their physiological functions in avian and mammalian species. Mechanisms of functional bioactive compound deposition into avian eggs and their application to the development of high-value functional eggs.	MURAI, Atsushi			FURUKAWA, Kyohei
	35. Animal Production Science	Studies on regulatory mechanism of physiological and reproductive functions in ruminants and its utilization for animal production.	OHKURA, Satoshi	MATSUYAMA, Shuichi NAKAMURA, Sho*		
	36. Avian Bioscience	Functional genomics-based identification of genes that control useful phenotypes of birds. Production of genetically manipulated birds for model animals and industrial use.	NISHIJIMA, Ken-ichi			OKUZAKI, Yuya REN, Liang
	37. Fish Biology	Morphological, physiological, and behavioral studies of the brain, sensory receptors, motor systems, and peptidergic neurons in aquatic animals.	YAMAMOTO, Naoyuki	ABE, Hideki		GOTO, Maki-2029.3Retirement HAGIO, Hanako
	38. Sericulture and Entomoresources	Molecular mechanisms of baculovirus infection, baculovirus-host interaction and antiviral responses in insects.	IKEDA, Motoko 2029.3Retirement			HAMAJIMA, Rina
	39. Applied Entomology	Studies on ecology and management methodology of insect pests by physiological, molecular, and chemical approaches.		MINAKUCHI, Chieka		MITAKA, Yuki

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4. Applied Biosciences	40. Integrative Organic Chemistry	Structural and functional analysis, design, and synthesis of bioactive molecules through integration of natural product chemistry, computational chemistry, data science, and organic synthesis.	URABE, Daisuke			
	41. Bioactive Molecules	Mechanistic studies on glycan-binding molecules and bioactive glycans, and their applications to drug development and agriculture.		NAKAGAWA, Yu		
	42. Chemical Biology of Natural Products	Isolation, structure determination, synthesis, biosynthesis, and modes of action of bioactive natural products that regulate biologically and physiologically intriguing phenomena. Anesthetic substances from venomous mammals, and key substances for marine symbiotic relationships. Development of new analytical methods for target molecules using fluorescent probes.	KITA, Masaki	TSUNEMATSU, Yuta		INOUE, Takato
	43. Polymer Chemistry	Studies on controlled syntheses and functions of biomaterials and medical polymers including artificial glycoconjugates, biofunctional polymers and environmentally friendly synthetic polymers.	AOI, Keigo 2029.3Retirement	NOMURA, Nobuyoshi		
	44. Applied Enzymology	Research on the structure-function relationships and physiological functions of enzymes involved in the metabolism of isoprenoid compounds, including archaeal membrane lipids, as well as amino acids and vitamins. Research on the production of valuable substances through microbial and enzyme engineering.	HEMMI, Hisashi	ITO, Tomokazu		NAGATA, Ryuhei
	45. Molecular Biotechnology	Molecular bioengineering for novel biomolecules, bioprocesses and analytical processes. Currently, novel monoclonal antibody screening, single molecule technology for protein engineering, and research on translation-enhancing peptide are major research topics.	NAKANO, Hideo 2027.3Retirement	COROVIC Jasmina KATO, Teruyo		
	46. Soil Biology and Chemistry	Studies on the microbial population, and the chemical and biological processes occurring in the paddy field ecosystem.	ASAKAWA, Susumu 2028.3Retirement	WATANABE, Takeshi		SHINJO, Rina
	47. Applied Microbiology	Molecular and chemical genetic studies on gene regulation of agriculturally and industrially important microorganisms, especially filamentous fungi.	KIMURA, Makoto			MAEDA, Kazuyuki
	48. Food and Biodynamics	Chemical biology of electrophilic ligands, such as lipid peroxidation products and functional food molecules.	SHIBATA, Takahiro			NAKASHIMA, Fumie SEI, Haruka
	49. Molecular and Cellular Regulation	Biochemical and molecular cell biological studies on signal transduction, intracellular traffic, gene expression regulation in animal cell differentiation, growth, proliferation and cell death.	SHIBATA, Hideki	TAKAHARA, Terunao		
	50. Glyco-Life Science	Interdisciplinary studies between bioagricultural, medicinal, and pharmaceutical sciences on regulatory mechanisms for glycans-involved phenomena to attain better health, environment, and food	SATO, Chihiro			HANE, Masaya Omoto, Takayuki Wu, Di****
	51. Animal Cell Physiology	Studies on functions of extracellular matrix, transporter proteins, and signal transduction.		MATURANA, Andrés Daniel	NIIMI, Tomoaki	
	52. Alimentary Neuroscience	Omnivorous animals including human evaluate and select specific foods among several candidates before consumption. Our goal is the identification of the neural mechanism for food choice.	NAKAJIMA, Ken-ichiro			SHIOTANI, Kazuki RATTANAJEARAKU L, Nawarat***
	53. Plant Signaling	Studies on molecular mechanisms underlying optimization of plant growth and development in response to environmental cues with focusing on phytohormone function.	SAKAKIBARA, Hitoshi		HASHIMOTO-SUGIMOTO, Mimi	BELLEGARDE, Fanny***
	54. Biochemistry	Biochemical, molecular genetic, and microscopic studies on regulatory mechanisms of development of plant organs such as flowers, pollen grains, and roots. Studies on molecular functions and regulation of membrane proteins that support photosynthesis and inorganic nutrient assimilation in plants and cyanobacteria.		ISHIGURO, Sumie		MAEO, Kenichiro MAEDA, Shin-ichi NAKANISHI, Yoichi
	55. Molecular and Functional Genomics	Biochemical, cellular and genetic studies on molecular mechanisms of photosynthesis, chlorophyll biosynthesis, nitrogen fixation, circadian rhythm and phytohormone signal transduction in cyanobacteria and plants.	FUJITA, Yuichi 2029.3Retirement	YAMASHINO, Takafumi		YAMAMOTO, Haruki
	56. Plant Cell Function	Molecular mechanisms of plant growth and development, and their regulation in response to environmental signals. Studies on the construction of artificial membrane-less organelles in plant cells.		UEGUCHI, Chiharu - 2027.3Retirement TAKEDA, Shin		
	57. Plant Integrative Physiology	Understanding plant circadian rhythms and seasonal behaviors with multi-omics approaches. Improvement of plant biomass and productivity by controlling key genes for circadian and seasonal behaviors.	NAKAMICHI, Norihito			

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