

## 【About the laboratory of the Graduate School of Bioagricultural Sciences Nagoya University】

There is a change in the laboratory described in “3. Academic Department / Laboratory offering master’s program” on page 8 of the application guidelines. Please refer to the following for details.

### 3. Academic Department/Laboratory offering master’s program (Change before)

Department	Laboratory
Forest and Environmental Resources Sciences	Resources Cycling in Pedosphere, Forest Environment and Resources, Forest Hydrology and Disaster Mitigation Science, Forest Ecology, Forest Protection, Forest Resource Management, Forest Resources and Society, Plant-Soil Systems, Forest Chemistry, Biomass Resource Utilization, Wood Physics, Timber Engineering, System Engineering for Biology
Plant Production Sciences	Plant Physiology and Morphology, Plant Genetics and Breeding, Crop Science, Crop Stress Regulation, Horticultural Science, Plant Pathology, Plant Immunology, Information Sciences in Agricultural Lands, Food Economics, Plant Gene Function, Agrigenome, Plant Genomics and Breeding, Bioindustry, Tropical Bioresources, Genetic Information for Bioresources, Practical Studies in Africa, Practical Studies in Asia
Animal Sciences	Animal Genetics and Breeding, Genome and Epigenome Dynamics, Animal Morphology, Animal Integrative Physiology, Animal Reproduction, Animal Nutrition, Animal Production Science, Avian Bioscience, Fish Biology, Sericulture and Entomoresources, Applied Entomology
Applied Biosciences	Organic Chemistry, Bioactive Molecules, Chemical Biology of Natural Products, Polymer Chemistry, Food and Biodynamics, Applied Enzymology, Molecular Biotechnology, Molecular and Cellular Regulation, Molecular Bioregulation, Animal Cell Physiology, Nutritional Biochemistry, Soil Biology and Chemistry, Applied Microbiology, Plant Signaling, Biochemistry, Molecular and Functional Genomics, Photosynthesis Research, Developmental Signaling Biology, Animal Cell Function, Plant Cell Function, Plant Metabolic System, Metabolic Balance of Ecosystem



### 3. Academic Department/Laboratory offering master’s program (After change)

Department	Laboratory
Forest and Environmental Resources Sciences	Resources Cycling in Pedosphere, Forest Environment and Resources, Forest Hydrology and Disaster Mitigation Science, Forest Ecology, Forest Protection, Forest Resource Management, Forest Resources and Society, Plant-Soil Systems, Forest Chemistry, Biomass Resource Utilization, Wood Physics, Timber Engineering, System Engineering for Biology
Plant Production Sciences	Plant Physiology and Morphology, Plant Genetics and Breeding, Crop Science, Crop Stress Regulation, Horticultural Science, Plant Pathology, Plant Immunology, Information Sciences in Agricultural Lands, Food Economics, Plant Gene Function, Agrigenome, Plant Genomics and Breeding, Bioindustry, Tropical Bioresources, Genetic Information for Bioresources, Practical Studies in Africa, Practical Studies in Asia
Animal Sciences	Animal Genetics and Breeding, Genome and Epigenome Dynamics, Animal Morphology, Animal Integrative Physiology, Animal Reproduction, Animal Nutrition, Animal Production Science, Avian Bioscience, Fish Biology, Sericulture and Entomoresources, Applied Entomology
Applied Biosciences	Organic Chemistry, Bioactive Molecules, Chemical Biology of Natural Products, Polymer Chemistry, Food and Biodynamics, Applied Enzymology, Molecular Biotechnology, Molecular and Cellular Regulation, Molecular Bioregulation, <b>Glyco-Life Science</b> , Animal Cell Function, Animal Cell Physiology, Nutritional Biochemistry, Soil Biology and Chemistry, Applied Microbiology, Plant Signaling, Biochemistry, Molecular and Functional Genomics, Photosynthesis Research, Developmental Signaling Biology, Plant Cell Function, Plant Metabolic System, Metabolic Balance of Ecosystem

**For the research contents of each laboratory, please refer to “Laboratories, Areas of Research, and Staff” on the following pages.**

## Laboratories, Areas of Research, and Staff

Graduate School of Bioagricultural Sciences, Nagoya University

Department	Laboratory	Area of Research	Staff			
			Professor	Associate Professor	Lecturer	Assistant Professor
1. Forest and Environmental 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			
	2. Forest Environment and Resources	Studies on regulatory mechanism of material cycling in forest based on environmental chemistry and plant physiology, and application to environmental problem.	TAKENAKA, Chisato (Scheduled to retire in March 2021)			
	3. Forest Hydrology and Disaster Mitigation Science	We aim to propose future of human-nature interaction, which has multi-layered and -meaning characteristics, from local to global scale, through investigating water cycle dynamics in various land cover including forest and vulnerability to disaster in community.		TANAKA, Takafumi		KOTANI, Ayumi
	4. Forest Ecology	Our laboratory covers a wide range of studies related to forest ecology, forest genetics, and forest ecophysiology. Especially structure, dynamics and functions in forest communities. Also genetic variation, reproduction, ecophysiology, dry matter production and balance as well as theoretical modeling in tree populations.	TOMARU, Nobuhiro	NAKAGAWA, Michiko	OGAWA, Kazuharu	
	5. Forest Protection	Forest entomology focusing on insect-fungus and insect-plant interactions. Forest ecosystem conservation based on the management of biological communities.	HIJII, Naoki	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			
	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 and community forestry	HARADA, Kazuhiro			
	8. 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		
	9. Forest Chemistry	Studies on biochemistry of lignification, chemistry of wood extractives, chemistry of lignin, preparation of functional materials from lignin, pulp and paper science, and cellulose chemistry.	FUKUSHIMA, Kazuhiko	MATSUSHITA, Yasuyuki	AOKI, Dan	
	10. Biomass Resource Utilization	Isolation and structural elucidation, biosynthesis, distribution and utilization of wood extractives.		IMAI, Takanori		
	11. Wood Physics	Generation processes of growth stress and wood properties during tree growth, Growth and maturation of tropical plantation species, Analysis of reaction wood formation by molecular approach, Physical and mechanical properties of wood materials.	YAMAMOTO, Hiroyuki	YOSHIDA, Masato	MATSUO, Miyuki	
	12. 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
	13. System Engineering for Biology	Studies on measurement system and precise mechanical process for biological resources.	TSUCHIKAWA, Satoru		INAGAKI, Tetsuya	

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## Laboratories, Areas of Research, and Staff

Graduate School of Bioagricultural Sciences, Nagoya University

Department	Laboratory	Area of Research	Staff			
			Professor	Associate Professor	Lecturer	Assistant Professor
2. Plant Production Sciences	14. Plant Physiology and Morphology	Studies from both aspects of structure and function on functional differentiation of plant cells and tissues, and response to environmental stresses.	TANIGUCHI, Mitsutaka			OI, Takao
	15. Plant Genetics and Breeding	Genetical and developmental research by biotechnological analyses with respect to evolution, morphogenesis, gene expression, and functional development of plant cultivated species.	NAKAZONO, Mikio			TAKAHASHI, Hirokazu
	16. Crop Science	Physiological and ecological studies on crop production: nutrient acquisition and growth response to environment.	KONDO, Motohiko	YANO, Katsuya		SUGIURA, Daisuke
	17. Crop Stress Regulation	Physiological and molecular mechanism of crop stress tolerance	YAMAUCHI, Akira		MITSUYA, Shiro	
	18. Horticultural Science	Physiological, biochemical and molecular biological approach to the mechanism of flower formation, flower opening and fruit set, growth of horticultural crops to improve their productivity.	MATSUMOTO, Shogo	SHIRATAKE, Katsuhiko	OTAGAKI, Shungo	
	19. 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.	KAWAKITA, Kazuhito (Scheduled to retire in March 2020)	TAKEMOTO, Daigo CHIBA, Soutaro		SATO, Ikuo
	20. Plant Immunology	Studies on the molecular mechanisms of plant immune response in plant-pathogen interactions.		YOSHIOKA, Hirofumi		
	21. 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
	22. Food Economics	Socioeconomic studies on food system, regional resource management and multifunctional roles of agriculture.	TOKUDA, Hiromi	TAKESHITA, Hironobu		MIURA, Satoshi
	23. Plant Gene Function	Studies on plant gene function and its application.	ASHIKARI, Motoyuki			NAGAI, Keisuke
	24. Agrigenome	Studies on genomic information for development of useful traits of rice and creation of novel plant regulators.	MATSUOKA, Makoto (Scheduled to retire in March 2021)	UEGUCHI, Miyako		
	25. Plant Genomics and Breeding	Study on plant genomics and breeding to solve various problems of modern society, <i>i.e.</i> environment, energy, food problems, etc.	SAZUKA, Takashi			
	26. Bioindustry	Studies on plant grafting and systemic signaling in plants to improve plant resources for future sustainability.		NOTAGUCHI, Michitaka		
	27. Tropical Bioresources	Screening of tropical plant resources and their utilization for environmentally friendly agriculture responding to diversification of food demand and climate change.	EHARA, Hiroshi			NAKATA, Mana
	28. Genetic Information for Bioresources	Studies on genetic information for useful traits of bioresources to aim utilization and application of regional resources and sustainable development through environmental conservation.	INUKAI, Yoshiaki			
	29. Practical Studies in Africa	Development of sustainable and appropriate technology for agricultural and forestry production, acclimation and dissemination of new resources and technologies, and social implementation based on research results in Africa		MAKIHARA, Daigo		
30. Practical Studies in Asia	Studies on agriculture and rural development including natural resources management in Asia for better livelihoods, poverty reduction and food security.		ITO, Kasumi			

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## Laboratories, Areas of Research, and Staff

Graduate School of Bioagricultural Sciences, Nagoya University

Department	Laboratory	Area of Research	Staff			
			Professor	Associate Professor	Lecturer	Assistant Professor
3. Animal Sciences	31. Animal Genetics and Breeding	Studies on the genetic basis of qualitative and quantitative traits in mammals and birds; evaluation, conservation and utilization of animal genetic resources; and development of new laboratory animal models for human disease and biological functions.		ISHIKAWA, Akira		YAMAGATA, Takahiro
	32. Genome and Epigenome Dynamics	Epigenetic regulatory systems for transposons and genes in vertebrates. Epigenome regulation during germ cell development. Genome-epigenome interactions during evolution.	ICHIYANAGI Kenji			
	33. Animal Morphology	Morphological studies on nervous and reproductive tissues in mammals and birds.	HONDO, Eiichi			
	34. Animal Integrative Physiology	Understanding the regulatory mechanisms of circadian rhythms and photoperiodism 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	NAKANE, Yusuke**	TSUKADA, Akira
	35. Animal Reproduction	Basic studies on the neuroendocrinological mechanism regulating animal reproduction and its application to animal production and drug discovery.	TSUKAMURA, Hiroko	UENOYAMA, Yoshihisa	INOUE, Naoko	
	36. Animal Nutrition	Analysis of the causative genes and nutritional factors for type II diabetes and metabolic syndrome. Physiological significance of vitamin C (L-ascorbic acid). Studies on the transport mechanism of bioactive substances (e.g. IgY) into avian eggs. Gut immune response by grain feedstuffs.	HORIO, Fumihiko (Scheduled to retire in March 2021)	MURAI, Atsushi	KOBAYASHI, Misato	
	37. Animal Production Science	Studies on regulatory mechanism of physiological functions in ruminants and its utilization for animal production.	OHKURA, Satoshi	MATSUYAMA, Shuichi		MORITA, Yasuhiro***
	38. Avian Bioscience	Molecular mechanisms of the limb development and evolution of the vertebrate morphogenesis. Functional genomics-based identification of genes that control avian-specific life phenomenon. Production of avian model animals by genetic modification and use thereof.	MATSUDA, Yoichi (Scheduled to retire in March 2020)	SUZUKI, Takayuki		
	39. 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
	40. Sericulture and Entomoresources	Molecular mechanisms of baculovirus infection, baculovirus-host interaction and antiviral responses in insects.	IKEDA, Motoko			YAMADA, Hayato
41. Applied Entomology	Studies on the development of insect pest management methodology via physiological and molecular approaches.		MIURA, Ken	MINAKUCHI, Chieka		

\*\*Designated Lecturer

\*\*\*Designated Assistant Professor

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## Laboratories, Areas of Research, and Staff

Graduate School of Bioagricultural Sciences, Nagoya University

Department	Laboratory	Area of Research	Staff			
			Professor	Associate Professor	Lecturer	Assistant Professor
4. Applied Biosciences	42. Organic Chemistry	Bioorganic studies on naturally occurring organic molecules possessing novel structure and biological activity: development of new synthetic methodologies, total synthesis of natural products, elucidation and control of the biofunctions.	NISHIKAWA, Toshio	NAKAZAKI, Atsuo		
	43. Bioactive Molecules	Studies on identification, action mechanism, biosynthesis and receptor of bioactive natural products (hormones, antibiotics, etc.) produced by plants, microorganisms, and marine organisms.	OJIKAWA, Makoto	NAKAGAWA, Yu	KONDO, Tatsuhiko	
	44. Chemical Biology of Natural Products	Isolation, structure determination, synthesis, 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			
	45. 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	NOMURA, Nobuyoshi		
	46. Food and Biodynamics	Chemical biology of electrophilic ligands, such as lipid peroxidation products and functional food molecules.		SHIBATA, Takahiro		
	47. Applied Enzymology	Mechanistic enzymology of pyridoxal and flavin enzymes. Physiological function of amino acids. Microbial and enzymatic production of useful substances. Lipid biosynthesis in Archaea.	YOSHIMURA, Tohru	HEMMI, Hisashi	ITO, Tomokazu	
	48. Molecular Biotechnology	Molecular bioengineering for novel biomolecules, bioprocesses and analytical processes.	NAKANO, Hideo	IWASAKI, Yugo	KOJIMA, Takaaki	DAMNJANOVIC, Jasmina
	49. Molecular and Cellular Regulation	Biochemical and molecular cell biological studies on signal transduction, intracellular traffic, gene expression regulation in animal cell differentiation, growth and cell death.		SHIBATA, Hideki	TAKAHARA, Terunao	
	50. Molecular Bioregulation	Biochemistry and molecular cell biology on the biosynthesis and dynamics of proteins, nucleic acids and glycoconjugates in higher animal and plant bodies, and on the function of proteins and glycoconjugates in immunity, fertilization, development, and differentiation.	MATSUDA, Tsukasa (Scheduled to retire in March 2020)	NADANO, Daita		OHSIMA, Kenji
	51. 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			
	52. Animal Cell Function	Studies on roles of cell surface glycan chains in the cell-cell interaction and signal transduction in fertilization, early development, neural functions and immunological phenomena.	KITAJIMA, Ken			
	53. Animal Cell Physiology	Studies on functions of extracellular matrix, transporter proteins, and signal transduction.		MATURANA, Andrés Daniel	NIIMI, Tomoaki	
	54. Nutritional Biochemistry	Nutritional regulation of enzyme and gene expression in mammals. Molecular mechanisms for hepatocyte differentiation in 3-dimensional culture systems. Physiological significance of liver circadian rhythm. Metabolism and physiological functions of branched-chain amino acids.		ODA, Hiroaki	KITaura, Yasuyuki	
	55. Soil Biology and Chemistry	Studies on the microbial population, and the chemical and biological processes occurring in the paddy field ecosystem.	ASAKAWA, Susumu		WATANABE, Takeshi	
	56. Applied Microbiology	Molecular and chemical genetic studies on signal transduction and gene regulation of agriculturally and industrially important microorganisms, especially filamentous fungi.	KOBAYASHI, Tetsuo (Scheduled to retire in March 2021)	KIMURA, Makoto		
57. 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	KIBA Takatoshi	TABATA, Ryo**	HASHIMOTO, Mimi	
58. Biochemistry	Biochemical, molecular genetic, and microscopic studies on regulatory mechanisms of development of plant organs such as flowers, pollen grains, and roots.		ISHIGURO, Sumie		MAEO, Kenichiro	

## Laboratories, Areas of Research, and Staff

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59.	Molecular and Functional Genomics	Biochemical, cellular and genetic studies on molecular mechanisms of chlorophyll biosynthesis, nitrogen fixation, circadian rhythm and phytochrome signal transduction in cyanobacteria and plants.	FUJITA, Yuichi	YAMASHINO, Takafumi		YAMAMOTO, Haruki TANAKA, Natsuki***
60.	Photosynthesis Research	Studies on molecular functions and regulation of membrane proteins that support photosynthesis and inorganic nutrient acquisition in plants and cyanobacteria.	OMATA, Tatsuo (Scheduled to retire in March 2020)			MAEDA, Shin-ichi NAKANISHI, Yoichi
61.	Developmental Signaling Biology	Studies on regulatory mechanisms of biochemical and molecular processes involved in the growth and development of higher plants.	MORI, Hitoshi			
62.	Plant Cell Function	Molecular mechanisms of plant growth and development, and their regulation in response to environmental signals..	HATTORI, Tsukaho (Scheduled to retire in March 2021)	UEGUCHI, Chiharu TAKEDA, Shin		

\*\*Designated Lecturer

\*\*\*Designated Assistant Professor

(as of October 1, 2019)