

## Division of Social Engineering and Environmental Management

### Department of Urban Environment Development

Research Areas	Instructors	Theme
Water Cycle Assessment	Prof. OKUBO Kenji	Material budget and flux estimation in rivers, lakes and coastal seas
	Asst. Prof. SAITO Mitsuyo	Nutrient transport, transformation and biogeochemical process in surface and ground water in coastal watershed
Hydraulic Engineering	Prof. MAENO Shiro	Evaluation of nature oriented hydraulic structures
	Assoc. Prof. YOSHIDA Keisuke	Study on prevention and mitigation of fluvial disasters
	Assoc. Prof. AKOH Ryosuke	Development of practical hydraulic model and numerical simulation for water disaster prevention
Geotechnical and Geoenvironmental Engineering	Prof. TAKESHITA Yuji	Geotechnical site characterization by in-situ non-destructive testing
	Asst. Prof. KIM Byeongsu	Study on mechanical behavior of soil for prevention and mitigation of ground disasters
Applied Computational Structural Mechanics	Prof. NISHIYAMA Satoshi	Development of modeling and analytical methods for reducing the risk of geohazard
	Assoc. Prof. KIMOTO Kazushi	Application of vibration and wave propagation theories to the monitoring of civil infrastructures
Environmental Vibration and Energy Engineering	Assoc. Prof. HIEJIMA Shinji	Study on wind and tidal current power generation using flow-induced oscillation
Evaluation of Groundwater Environment	Assoc. Prof. KOMATSU Mitsuru	Investigation of groundwater flow and preservation of geoenvironment
Environmental Conscious Materials	Prof. AYANO Toshiki	Durability of concrete structures
	Assoc. Prof. FUJII Takashi	Development of environment conscious materials for construction works

### Department of Rural Environment Management

Research Areas	Instructors	Theme
Vegetation Management	Asst. Prof. NAKASHIMA Yoshitaka	Function and management of weed vegetation
Aquatic Zoology	Assoc. Prof. NAKATA Kazuyoshi	Ecology and conservation of freshwater animals
Soil Management	Prof. MAEDA Morihiro	Soil and water quality management in agricultural land
Agricultural Land Engineering	Prof. MORI Yasushi	Conservation and restoration of soil environment
	Asst. Prof. TSUJIMOTO Kumiko	Study on soil-plant-atmosphere interaction through integrating ground observation, satellite observation, and numerical models
Terrestrial Information Management	Prof. MORITA Hidenori	Study on rural environment using terrestrial information processing
Irrigation and Drainage	Prof. MOROIZUMI Toshitsugu	Movement of water, heat, and chemicals in soil-atmosphere continuum
	Assoc. Prof. SOMURA Hiroaki	Study on efficient use of water resources by appropriate irrigation management
Catchment Hydrology	Prof. CHIKAMORI Hidetaka	Future prediction of change in basinwide circulation of water
	Assoc. Prof. KUDO Ryouji	Hydrological analysis of catchment responses to environmental changes
Design of Environmental Infrastructures	Prof. NISHIMURA Shin-ichi	Prediction and risk evaluation in geotechnical problems
	Assoc. Prof. SHUKU Takayuki	Studies on inverse analysis in geotechnical engineering
Management of Environmental Infrastructures	Assoc. Prof. SHIBATA Toshifumi	Analysis of nonlinear soil-structure interaction problems
Environmental Economics	Prof. UBUKATA Fumikazu	Economic development, natural resources, and environmental governance in developing countries
International Rural Studies	Prof. KIM Doo-Chul	Depopulated rural studies in Japan, China and Korea, Area study of Vietnam
	Assoc. Prof. HONDA Yasuko	Establishment of a new maintenance system for rural resources as commons by promoting non-farmers' multipurpose use of the resources
Rural Planning	Assoc. Prof. KUKI Yasuaki	Establishment of comprehensive rural planning theory in community and municipality levels

## Division of Biological and Human Environment

### Department of Environmental Ecology

Research Areas	Instructors	Theme
Physiological Plant Ecology	Prof. SAKAMOTO Keiji	Ecological studies on stand dynamics and population dynamics in forests
	Assoc. Prof. MIKI Naoko	Ecophysiological analysis of water use mechanism in woody species
Environmental Soil Science	Prof. SHIMA Kazuto	Nutrient dynamics in soil-plant ecosystems

Research Areas	Instructors	Theme
Forest Ecology	Prof. HIROBE Muneto	Nutrient dynamics in forest ecosystems
	Assoc. Prof. HYODO Fujio	Functional roles of consumer organisms in forest ecosystems
	Asst. Prof. MIYAZAKI Yuko	Ecological studies on forest dynamics and reproductive system of forest tree
Conservation of Aquatic Biodiversity	Assoc. Prof. FUKUDA Hiroshi	Systematics and conservation of molluscs
Insect Ecology	Assoc. Prof. TAKAHASHI Kazuo	Ecological genetics and entomology
Evolutionary Ecology	Prof. MIYATAKE Takahisa	Ecological evolutionary studies on insect population dynamics
	Asst. Prof. OKADA Kensuke	Evolutionary studies on morphology and behavior in insects
Bioproduction Systems Engineering	Prof. MONTA Mitsuji	Robotics for bio-production
	Assoc. Prof. NAMBA Kazuhiko	Plants growth control using the speaking plant approach
Resources Management	Prof. YOKOMIZO Isao	Sustainable and optimal model building for farm management and agricultural production organization in rural community
	Assoc. Prof. DATAI Hisashi	Strategic policies for rural resource planning and rural resource management system
Farm Management Systems and Information Processing	Prof. KOMATSU Yasunobu	Research on the system development of the food production and marketing
	Assoc. Prof. OHNAKA Katsutoshi	Research on the farm management and agricultural policy

## Department of Human Ecology

Research Areas	Instructors	Theme
Applied Mathematics	Assoc. Prof. HAYASAKA Futoshi	Theory of multiplicities, graded rings and integral closure of modules
	Assoc. Prof. AOYAMA Takahiro	Developing and analyzing stochastic models in environmental and life science
Mathematical Analysis for Environmental Studies	Prof. KAJIWARA Tsuyoshi	Mathematical models for biological and life phenomena and related mathematical methods
	Assoc. Prof. SASAKI Toru	Mathematical analysis and its applications to mathematical biology
Environmental Modeling and Analysis	Prof. WATANABE Masaji	Mathematical theories and computer simulations for microbial processes, mathematical theories and computer simulations for waves and flows in environment, and techniques for use of hardware including GPS in experiment and measurement related to environmental problems
Applied Numerical Analysis	Prof. ISHIHARA Takashi	Computational science and numerical analysis for understanding turbulent flow phenomena in environmental and life science
Environmental Statistics	Prof. SAKAMOTO Wataru	Statistical modeling and computing for analyzing data in environmental and life science
	Assoc. Prof. YAMAMOTO Michio	Statistical data analysis for environmental and life sciences
Design and Analysis of Environmental Survey and Experiments	Prof. KURIHARA Koji	Statistical approaches for spatio-temporal data
	Prof. IIZUKA Masaya	Development of variable selection in multivariate method and its software for environmental data
	Assoc. Prof. ISHIOKA Fumio	Detection of spatial, temporal and space-time clustering for environmental and life science data
Environmental Epidemiology	Prof. TSUDA Toshhide	Health effects induced by environmental pollution (various pollutants); Epidemiologic investigation on a food borne disease outbreak; Causal inference in medical and environmental sciences
International Health	Assoc. Prof. YORIFUJII Takashi	Environmental epidemiological studies (air pollution, methylmercury, arsenic, and etc.) as well as child and perinatal epidemiological studies

## Division of Sustainability of Resources

### Department of Sustainable Society Studies

Research Areas	Instructors	Theme
Solid Waste Management and Recycling	Prof. FUJIWARA Takeshi	Research on development of solid waste management towards sound material-cycle society
	Assoc. Prof. MATSUI Yasuhiro	Research on system analysis for waste management
Environmental Measurement and Control	Prof. KAWAMOTO Katsuya	Effective and safe disposal of solid/liquid wastes, and development of material and/or energy recovery
	Assoc. Prof. IWATA Toru	GHG exchange processes across air-ocean and air-terrestrial interface

Research Areas	Instructors	Theme
Environmental Management	Prof. TAKEUCHI Fumiaki	Biochemistry of Iron-oxidizing bacteria and its application to environmental preservation
	Assoc. Prof. NAGARE Hideaki	Water treatment, phosphorous resource recovery, water environment management in lakes and wetlands
Planning of Sound - Material Cycle Society	Prof. ABE Hirofumi	Development and application of economic analysis for the planning of sound material-cycle society
Urban Planning	Assoc. Prof. HIGUCHI Teruhisa	Study on technological histories of civil engineering
	Assoc. Prof. UJIHARA Takehito	Urban and regional planning in an era of population decrease and environmental constraints
Urban and Transport Planning	Assoc. Prof. HASHIMOTO Seiji	Urban Transportation planning for sustainable society

## Department of Material and Energy Science

Research Areas	Instructors	Theme
Ceramic Materials	Prof. NANBA Tokuro	Development of ceramic materials for reducing environmental burden
	Assoc. Prof. BENINO Yasuhiko	Morphology control of functional glass and glass-ceramic materials
Inorganic Functional Material Chemistry	Prof. KAMESHIMA Yoshikazu	Development of eco-friendly inorganic materials
	Assoc. Prof. NISHIMOTO Shunsuke	Development of functional inorganic materials for environmental protection and energy conversion
Advanced Organic Materials	Assoc. Prof. TAKAGUCHI Yutaka	Advanced Materials Based on Dendrimers and/or Fullerenes
	Sr. Asst. Prof. TAJIMA Tomoyuki	Development of organic molecular devices containing main group elements
Environmental Polymer Chemistry	Prof. KIMURA Kunio	Creation of environmentally benign polymerization system and polymer materials
	Assoc. Prof. YAMAZAKI Shinichi	Design of high-performance environmental polymeric materials based on high-order structural control
	Asst. Prof. ATARASHI Hironori	Development of low environmental load polymer materials
Environmental Process Engineering	Prof. KIMURA Yukitaka	Design for environmental process using subcritical water
	Assoc. Prof. SHIMANOUCI Toshinori	Design and Development of Novel Separation Process, Associating with Formation of Heterogeneous Phase at Interface with Dynamic Ordered-Structure
Environmental Reaction Engineering	Prof. (Special appointment) KATO Yoshiei	Material processing by environmentally benign reaction
	Prof. UDDIN Md. Azhar	Development of catalysts for the recycling of energy and resources

## Division of Science for Bioresources

### Department of Biofunctional Chemistry

Research Areas	Instructors	Theme
Applied Natural Product Chemistry	Prof. KIYOTA Hiromasa	Synthesis of Bioactive Compounds and Development of New Methodologies in Organic Synthesis
	Assoc. Prof. IZUMI Minoru	Synthesis of Bioactive Compounds and Development of New Methodologies in Organic Synthesis
Chemistry of Bioactive Compounds	Prof. KANZAKI Hiroshi	Search and Production of Useful Bioactive Compounds Using Cells or Enzymes
	Assoc. Prof. NITODA Teruhiko	Search for Natural Bioactive Compounds
Functional Glycobiology	Prof. KIMURA Yoshinobu	Functional Analysis and Application of Bioactive Glycoconjugates
	Assoc. Prof. MAEDA Megumi	Immunomodulatory Effects on Antigenic <i>N</i> -glycans of Plant Glycoproteins
Applied Enzyme Chemistry	Prof. INAGAKI Kenji	Structural and Functional Analysis of Useful Enzymes from Extremophiles
	Prof. TAMURA Takashi	Structure-Function Study on Selenium-Containing Enzymes
	Assoc. Prof. MORIYA Hisao	Analysis of Consequences of Protein Overexpression
Food Biochemistry	Prof. NAKAMURA Yoshimasa	Molecular Basis for Physiological Functions of Food Chemicals
	Asst. Prof. NAKAMURA Toshiyuki	Functional Mechanism and Bioavailability of Food Factors
Chemistry of Bio-signalling	Prof. MURATA Yoshiyuki	Elucidation of Mechanisms of Response and Tolerance to Environmental Stresses in Plants
	Asst. Prof. MUNEMASA Shintaro	Elucidation of Molecular Mechanisms Controlling Environmental Stress Responses in Plants
Microbial Function	Prof. KAMIMURA Kazuo	Ecological, Physiological and Molecular Biological Research on Acidophilic Chemoautotrophic Bacteria
	Assoc. Prof. KANA O Tadayoshi	Physiological, Biochemical and Molecular biological Research on Acidophilic Chemoautotrophic Bacteria

## Department of Plant Stress Science

Research Areas	Instructors	Theme
Plant Genetics and Physiology	Prof. SAKAMOTO Wataru	Characterization of molecular mechanisms controlling photosynthesis and other important agronomical traits
	Assoc. Prof. MATSUSHIMA Ryo	Plant cell biology about cereal seed storage material
	Asst. Prof. KATO Yusuke	Study of proteases regulating chloroplast functions
Signaling Mechanisms	Prof. HIRAYAMA Takashi	Understanding of molecular mechanisms for responses to plant hormones and environment stresses and signal intergration system in higher plants
	Assoc. Prof. MORI Izumi	Studies on environmental signal integration systems of stomatal guard cells
Plant Cytomolecular Biochemistry	Assoc. Prof. SUGIMOTO Manabu	Characterization of plant biomacromolecular responding to extreme environment and its application to the development of stress-tolerant plants
Plant Stress Responses	Prof. MA Jian Feng	Molecular mechanisms of plant mineral stress tolerance and transporter identification
	Assoc. Prof. YAMAJI Naoki	Studies on mineral distribution control systems in plants
	Assoc. Prof. MITANI Namiki	Studies on mineral transporters in plants
	Asst. Prof. YOKOSHO Kengo	Studies on mineral stress tolerance and their regulation mechanism in plants
Plant Molecular Physiology	Prof. KATSUHARA Maki	Plant molecular, cellular, and physiological studies of water and ion transports under environmental (especially salt and osmotic) stresses
	Assoc. Prof. SASAKI Takayuki	Analyses of plant growth mechanism regulated by ion transporters under acid soil and environmental stresses
Molecular Virology	Prof. SUZUKI Nobuhiro	Elucidation of molecular mechanisms underlying replication and symptom induction of agriviruses
	Assoc. Prof. KONDO Hideki	Molecular biology of plant-virus interactions
	Asst. Prof. HYODO Kiwamu	Molecular mechanisms of plant-virus interactions
Plant-Insect Interactions	Prof. GALIS Ivan	The role of plant hormones, genes and metabolites in defense of plants against herbivorous insects
	Asst. Prof. SHINYA Tomonori	Molecular mechanism of herbivory perception in plants
Plant-Environmental Microbiology	Assoc. Prof. TANI Akio	Physiology and application of plant-associated bacteria
	Assoc. Prof. UEKI Shoko	Study on interaction between plant viruses and their hosts at molecular and cellular level
Plant Diversity Analysis	Prof. SATO Kazuhiro	Evaluation and utilization of plant genetic resources based on genetic analysis and genome diversity analysis
	Assoc. Prof. SAISHO Daisuke	Research on genetic diversity and adaptive evolution in barley
	Assoc. Prof. HISANO Hiroshi	Study for the genetic diversity of agronomically-important traits in plants and application to plant breeding
	Asst. Prof. YAMASHITA Jun	Studies on plant systematics based on morphology and molecular phylogeny, and conservation of local populations
Plant Functional Genomics	Prof. TAKETA Shin	Identification of genes controlling morphology, seed nutrients and disease resistance in barley and grasses
Molecular Biology of the Nucleus	Prof. YAMAMOTO Toshio	Development of genomics-assisted breeding in rice
	Assoc. Prof. NAGAKI Kiyotaka	(1) Analyses of plant centromeres, and (2) Analyses of relationship between chromosome structure and repetitive DNA sequences.
Crop Genome Modification	Prof. MAEKAWA Masahiko	Analysis for genetically regulatory mechanism for phenotype and its application of rice
	Asst. Prof. RIKIISHI Kazuhide	Genetic and physiological studies on the regulation of pre-harvest sprouting in cereals
	Asst. Prof. UTSUGI Shigeko	Study on regulation of seed germination by plant hormones
Plant Diversity and Evolution	Assoc. Prof. IKEDA Hajime	Geographic structure of genetic diversity and local adaptation in plants

## Division of Science for Bio-Production

### Department of Plant Science

Research Areas	Instructors	Theme
Genetic Engineering	Prof. ICHINOSE Yuki	Virulence of phytopathogenic bacteria and plant non-host resistance
	Assoc. Prof. YAMAMOTO Mikihiro	Plant-phytopathogenic fungi interactions
	Asst. Prof. MATSUI Hidenori	Functional analysis of plant immune regulators and plant breeding for disease resistance
Plant Genome Dynamics Analysis	Prof. TAHARA Makoto	Crop genome and retrotransposon analyses
	Assoc. Prof. MONDEN Yuki	Genetic analysis based on plant genome informatics
Plant Pathology	Prof. TOYODA Kazuhiro	Molecular biology of parasitism and immunity in plant-microbe interactions
	Assoc. Prof. NOUTOSHI Yoshiteru	Plant disease resistance mechanism and immune-priming chemicals

## Department of Plant Science

Research Areas	Instructors	Theme
Plant Genetics and Breeding	Prof. KATO Kenji	Molecular genetic studies on diversity and agronomical traits of crop genetic resources
	Assoc. Prof. NISHIDA Hidetaka	Molecular genetic study on heading-related traits in wheat and barley
Postharvest Horticulture	Assoc. Prof. NAKANO Ryohei	Postharvest biology and technology of horticultural crops
Postharvest Physiology	Prof. KUBO Yasutaka	Molecular analysis of fruit ripening and its application for postharvest technology
	Assoc. Prof. USHIJIMA Koichiro	Molecular biology and genetic engineering for horticultural crops
Plant Production Science	Prof. SAITOH Kuniyuki	Development and systematization of production technology for crop cultivation, and analysis of eco-physiological characteristics of crop varieties for high-yielding and high-quality
Pomology	Assoc. Prof. HIRANO Ken	Physiological and morphological studies on berry growth and maturation of grape
	Assoc. Prof. FUKUDA Fumio	Physiological analysis of fruit quality and development of new growing system on fruit trees
	Asst. Prof. KAWAI Takashi	Development of a gene evaluation system for Prunus fruit tree species with virus vector
Vegetable Crop Science	Assoc. Prof. YASUBA Ken-ichiro	Improvement of growth of vegetables with controlling environment
	Assoc. Prof. TANAKA Yoshiyuki	Analysis of beneficial traits in vegetable genetic resources and its application for breeding
Control of Flowering	Prof. YOSHIDA Yuichi	Control of growth and flowering in horticultural plant production
	Prof. GOTO Tanjuro	Flowering control and production of floriculture
Crop Science	Prof. (Special appointment) KOBATA Tohru	Stress physiology and quantitative analysis of plant production in crop plants
	Assoc. Prof. HIRAI Yoshihiko	Improvement of crop productivity and quality under environmental stress

## Department of Animal Science

Research Areas	Instructors	Theme
Reproductive Physiology	Prof. KIMURA Koji	Establishment of pregnancy in farm animals
	Asst. Prof. YAMAMOTO Yuki	Mechanisms of oviductal function in mammals
Animal Development and Reproductive Biotechnology	Prof. FUNAHASHI Hiroaki	Maturation and fertilization of mammalian gametes and the applied manipulation
	Assoc. Prof. WAKAI Takuya	Basic and applied research on organelles in mammalian oocytes and embryos
Animal Physiology	Prof. SAITO Noboru	Study on the mechanism of homeostatic function and reproduction of birds
	* Prof. ANDO Motonori	Studies on structure-function relationship of the mammalian stria vascularis, and of the avian tegmentum vasculosum, in the cochlear duct
	Assoc. Prof. HATABU Toshimitsu	Pathophysiological and immunological studies on host-pathogen relationships in domestic animals and fowls
Animal Breeding and Genetics	Assoc. Prof. IBI Takayuki	Genetic analysis and breeding for quantitative traits in Livestock
Applied Animal Genetics	Prof. KUNIEDA Tetsuo	Studies on effects of mutations on physiological functions and developmental processes of animals
	Assoc. Prof. TSUJI Takehito	Studies on genes regulating body growth and reproductive functions in mammals
Animal Nutrition and Feed Science	Prof. NISHINO Naoki	Microbial ecology associated with feed preservation and animal health
	Assoc. Prof. TSURUTA Takeshi	Research on the underlying mechanism of disease preventive effects exerted by food bacteria and dietary fiber
Animal Applied Microbiology	Prof. MORITA Hidetoshi	Studies on human microbiome and comparative genomics of bacteria
	Assoc. Prof. ARAKAWA Kensuke	Processing and quality control of animal food products using lactic acid bacteria
Assisted Reproductive Medicine	Assoc. Prof. OTSUKI Junko	Research on the culturing of human embryos and ICSI technology, and the meiotic abnormalities and dysmorphic phenotypes in human oocytes
	Asst. Prof. TAKAYAMA Osamu	Studies on the assisted reproductive technology and education of clinical embryologist

\* Affiliation Graduate School of Education

## Woman-Tenure-Track Staff

Research Areas	Instructors	Theme
Signaling Mechanisms	Asst. Prof. IKEDA Yoko	Study on epigenetic gene regulation in plants
Applied Numerical Analysis	Asst. Prof. OBUSE Kiori	Mathematical understanding and descriptions of hierarchical structures in fluid systems
Environmental Measurement and Control	Asst. Prof. TAMURA Ikumi	Ecological risk assessment of chemical contaminant in river and brackish water
Applied Enzyme Chemistry	Asst. Prof. NEMOTO Michiko	Understanding and application of microbial function
Resources Management	Asst. Prof. HIGASHIGUCHI Akiko	Establishment of rural environmental management system principally involving wildlife management