English-based Program

Department	Research Area	Research Instruction		Application Code		Main Supervisor				Vice Supervisor		
				Master	Doctor							
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Biomedical Robotics Engineering and its Application	The scope covers research on a next generation cancer treatment robot to dramatically enhance the treatment technology for recurrent or progressive cancers which have remained difficult to completely cure, and remote echography assistive ICT-robotic system to allow early disease detection in the fields of cardiology and perinatal care.	P33	P83	Professor	Doctor of Engineering (Waseda University)	IWATA, Hiroyasu	jubi@waseda.jp	Professor	Doctor of Medicine (Tokyo Women's Medical University), Doctor of Biomedical Science (Waseda University	MURAGAKI, Yoshihiro
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Medical Image Engineering and its Application	In surgical field such as neurosurgery, this reseach clarifies a method for achieving intellectual, advanced surgical support systems and navigations based on autonomous vairous medical image/information processing.	P34	P84	Professor	Doctor of Engineering (The University of Tokyo)	OHYA, Jun	ohya@waseda.jp	Professor	Doctor of Engineering (University of Tokyo)	MASAMUNE, Ken
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Medical Mechanical Engineering and its Application	We will develop modeling technologies of cardiovascular circulatory system and experimental simulation technologies, and conduct biomedical engineering research directly contributing to advancement of clinical medicine on (1) the development of innovative medical devices (ventricular assist device, valve, less-invasive / regenerative medical devices), (2) the development of unprecedented scientific evaluation methods to speed up the approval process, and (3) the development of effective treatment methods.	P23	P73	Professor	Doctor of Engineering (Waseda University)	IWASAKI, Kiyotaka	iwasaki@waseda.jp	Associate Professor Professor Professor	Doctor of Engineering (Waseda University) Doctor of Medicine (Tokyo Women's Medical University) Doctor of Medicine (Kyushu University)	YAGI, Takanobu NIINAMI, Hiroshi OKAZAKI, KEN
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Biorobotics	We are doing researches on the design and the control methods and the application technologies of a humanoid robot with practical hardware and software developments based upon the rersearch philosophy that the human is the best reference for robots.	P02	P52	Professor	Doctor of Engineering (Waseda University)	TAKANISHI, Atsuo	takanisi@waseda.jp	Professor Associate Professor Associate Professor	Doctor of Engineering (Waseda University) Doctor of Engineering (Waseda University) Doctor of Engineering (Waseda University)	FUJIMOTO, Hiroshi ISHII, Hiroyuki COSENTINO, Sarah
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Bio-electronic Measurements and Control	Study on the measurement of medical elctronics and control is focused to complete their own research ; e.g.measurement of tissue and cell function, mesurement of cardiac function and evaluation of biofeedback system.	-	-	Professor	Doctor of Engineering (Waseda University)	IWATA, Hiroyasu	jubi@waseda.jp	Associate Professor Professor	Doctor of Engineering (Waseda University)	MOMOSE, Keiko

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				Master	Doctor							
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Advanced Medical Device	We aim to elucidate and improve the functions of cells, tissues, organs, and biological systems through research on advanced medical devices and technologies.	P40	P90	Professor	Doctor of Engineering (Waseda University)	IWASAKI, Kiyotaka	iwasaki@waseda.jp	Professor	Doctor of Medicine (Osaka University)	MIYATA, Toshio
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Molecular Genetics	Despite remarkable progress in molecular biology concerning gene expression in chromatin context, we are still far from a clear understanding of how genomic DNA is packaged without entanglement into a nucleus, how genes are functionally wrapped up in chromatin. We are investigating these issues from a viewpoint of conformation and physical properties of DNA.	-	P59	Professor	Doctor of Science (Nagoya University)	OHYAMA, Takashi	ohyama@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Developmental Biology	During the developmental process, a small number of stem cells give rise to diverse cell types to construct a three dimensional organism. The aim of this study is to decipher multilevel interactions between molecules, cells and tissues to identify new mechanisms underlying the principles of development.	P31	P81	Professor	Doctor of Science (Waseda University)	HANASHIMA, Karina	hanashima@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Plant Physiology and Biochemistry	We aim to elucidate the molecular mechanisms of environmental responses in plants with emphasis on photosynthesis that energetically supports the entire ecology on Earth.	-	P76	Professor	Doctor of Science (The University of Tokyo)	SONOIKE, Kintake	sonoike@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Regulation Biology	Plant developed unique intra-cellular transport system in which two classes of myosin motors (plant specific) move along actin cytosleletal network. Although this transport system may be essential for regulation of biological processes in plant, most of molecular and physiological mechanisms still remains unclear. Our goal is "integrated understanding" of biological mechanisms of plant through analyzing the functions of plant myosin "from molecules to individual level".	-	P80	Assistant Professor	Doctor of Science (Himeji Institute of Technology)	TOMINAGA, Motoki	motominaga@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biomolecular Function	Research on Biomolecular Engineering	Action of bioactive suvatances and their application to medicinal technologies are studied. Especially, efficient syntheses of bioactive compounds and their modes of action are investigated. New methodologies and strategies to establish efficient syntheses are also studied.	-	-	Associate Professor	Doctor of Agriculture (Nagoya University)	HOSOKAWA, Seijiro	seijiro@waseda.jp	Proressor	Doctor of Engineering (Waseda University)	IWASAKI, Kiyotaka

English-based Program

Department	Research Area	Research Instruction		Application Code		Main Supervisor				Vice Supervisor		
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Department of Integrative Bioscience and Biomedical Engineering	Biomolecular Function	Research on Theoretical Biophysics	Computer simulations, mainly using the molecular dynamics simulations method, are applied to the molecular machine systems composed of proteins. Particularly, basic physical properties of the free-energy-transducer molecular machines are studied based on the statistical mechanics and thermodynamics, and the common characteristics of living materials are pursued.	-	P64	Professor	Doctor of Philosophy (The University of Tokyo)	TAKANO, Mitsunori	mtkn@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biomolecular Function	Research on Physicobiology	The purpose of this course is to clarify the cause-and-effect relationship in various phenomena observed in animals including human from the viewpoint of physical aspscts. For this purpose, we examine biological systems using physical ideas and further develp de novo measurement techniques by ourselves, expanding these new inventions to medical applications.	P27	P77	Professor	Doctor of Science (Waseda University)	ITO, Etsuro	eito@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biomolecular Function	Research on Molecular Physiology	Biology toward functional universality beyond diversity on hematopoiesis: the fundamental system for the development and proliferation of blood cells originated from primitive and self-renewing hematopoietic stem cells, at a molecular to systemic individual level. Both pure and applied studies are conducted with the wide perspective of molecular to protein chemistry, molecular biology, cell biology, including the implementation of new experimental procedures.	-	P69	Professor	Doctor of Science (Waseda University)	KATO, Takashi	tkato@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biomolecular Function	Research on Molecular Biophysics	Experimental approaches to understand the molecular mechanism by which protein filaments and molecular motors work. Emphasis is placed on structural polymorphism of actin filaments, to unveil the principles and properties of protein machines that are distinct from artificial ones.	P15	P65	Professor	Doctor of Science (The University of Tokyo)	UEDA, Taro	t-uyeda@waseda.jp			

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Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Regenerative Medical Engineering and its Application	"Research on regenerative medical engineering and its application" are studies which fabricate artificial organ and monitor biological signal by cutting edge technologies such as tissue engineering, bio-fabrication, and bio-electronics.	P32	P82	Associate Professor	Doctor of Engineering (Waseda University)	UMEZU, Shinjiro	umeshin@waseda.jp	Professor Associate Professor	Doctor of Medicine (University of Tokyo) Doctor of Engineering (Waseda University)	SHIMIZU, Tatsuya SAKAGUCHI, Katsuhisa
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Synthetic Biology	The gene expression system combining transcription and translation processes was reconstituted from the purified components in a testtube and was named the PURE system. Cell-division system, membrane transport system and energy production system have been developed by expressing the responsible proteins from the genes in the PURE system. Through the integration of these systems, synthesis of artificial cell is addressed.	P35	P85	Professor	Doctor of Philosophy (The University of Tokyo)	UEDA, Takuya	takuyaueda@aoni.waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Environmental Ecology	Carbon and nitrogen are both essential elements for all organisms and these elements circulate through the ecosystem with being absorbed into organisms or emitted to the environment. We are examining the various processes involved in the carbon and nitrogen cycles in the terrestrial ecosystems and then clarifying the mechanisms of tempo-spatial variations of these processes. Furthermore, we are also focusing on the function of microbial community inhabiting in the pedosphere.	P36	-	Associate Professor	Doctor of Philosophy (Hiroshima University)	YOSHITAKE, Shimpei	syoshi@waseda.jp			
Department of Integrative Bioscience and Biomedical Engineering	Biological System	Research on Evolutionary Biology	To improve our understandings of the mechanisms that maintain and create biodiversity, we conduct evolutionary biological research on wildlife. We use multidisciplinary approaches including field sciences, behavioral ecology, population genetics, evo-devo, and genomics.	P39	P89	Associate Professor	Docter of Science (Kyoto University)	HOSO, Masaki	hoso@waseda.jp			