2023/2024 Academic Years

Graduate School of Integrated Sciences for Life

Hiroshima University

Application Guidelines
General Selection

Doctoral Course

（October 2023/April 2024 Admissions）

May 2023

Hiroshima University

Admissions Policy　<Doctoral Course>

The Graduate School of Integrated Sciences for Life, based on its Diploma Policy and Curriculum Policy, expects to admit doctoral students as described below.

Students who:

1. Have strong volition to do research, and who wish to create new science that integrates and links different fields

[Program of Bioresource Science]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.
Students who:

1. Have systematically understood life phenomena related to the production and use of biological resources from the molecular level to ecosystems;
2. Have acquired broad expertise and research skills regarding the sustainable production and utilization of biological resources in both land and water zones, and who are equipped with abilities to understand and solve various problems in related fields from regional to international scope;
3. command of English;
4. Have acquired abilities at the level of completing a graduat knowledge, attitude, and skills in the specialized fields of their choice; and
5. Have acquired common sense as a working member of society, and ethical standards as a researcher or a highly specialized engineer.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, etc.

[Program of Life and Environmental Sciences]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.
Students who:

1. Have a broad interest in the life science fields from the molecular level to whole environments and ecosystems, and who wish to acquire basic research abilities, expertise and skills for a specific field, and learn the theories and methods of understanding and utilizing these abilities from a comprehensive perspective;
2. Wish to understand various problems existing in life science and environmental science, and to solve them professionally, immediately, and internationally;
3. Wish to play an active role independently as a generalist who also covers areas outside life science and environmental science without being constrained by their own expertise;
4. command of English;
5. gher regarding knowledge, attitude, and skills in the specialized fields of their choice; and
6. Have acquired common sense as a working member of society, and ethical standards as a researcher or a highly specialized engineer.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, etc.

[Program of Basic Biology]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.
Students who:

1. Have acquired specialized knowledge, skills, and research abilities in biology at molecular, cellular, individual, ecological, and evolutionary levels that should have been acqui ;
2. command of English; and
3. Have acquired common sense as a working member of society, and ethical standards as a researcher or a highly specialized engineer.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, etc.

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The Graduate School of Integrated Sciences for Life, Hiroshima University, is recruiting students for the Doctoral Course in the Department of Integrated Science for Life to be enrolled in .

1. Number of Students to Be Recruited and Venue for Examinations, etc.

	Program	Number of students to be recruited	Examination Date	Examination Venue	Inquiries Submission addresses
Department of Integrated Sciences for Life	Biotechnology	A few	One day between August 1 and August 24, 2023 * Please refer to the "Note" below.	* Please refer to the "Note" below.	, Hiroshima University 1-3-1, Kagamiyama, Higashi-Hiroshima, 739-8530 TEL: (082) 424-7008, 7009
	Food and AgriLife Science				(Graduate Student Affairs), Hiroshima University 1-4-4, Kagamiyama, Higashi-Hiroshima, 739-8528 TEL: (082) 424-7908
	Bioresource Science				
	Life and Environmental Sciences				(Graduate Student Affairs), Hiroshima University 1-7-1, Kagamiyama, Higashi-Hiroshima, 739-8521 TEL: (082) 424-6316
	Basic Biology				(Graduate Student Affairs), Hiroshima University 1-3-1, Kagamiyama, Higashi-Hiroshima, 739-8526 TEL: (082) 424-7309, 4468
	Mathematical and Life Sciences				
	Biomedical Science				

Note: Examination date, and time, will be notified individually later.

2. Applicant Eligibility

Applicants must satisfy one of the following qualifications or be expected to receive any one of the following qualifications by September 30, 2023. Applicants shall be residing in Japan and must make an affirmation of admission when applicants will pass the entrance examination.

(1) Have ;
(2) Have received a maste ;
(3) Have completed class subjects in Japan conducted by a foreign school by correspondence education and or a professional degree;
(4) Have completed a course in Japan at an educational facility positioned as a facility that has the curriculum of a foreign graduate school under said foreign
the Minister of Education, Culture, Sports, Science and Technology, and has been conferred a degree .
(5) Have completed a course at the United Nations University, established based on the December 11, 1972 United Nations General Assembly resolution stipulated in Article 1, Paragraph 2 of the Act on Special Measures (Act No. 72 of 1976) incidental to enforcement of the agreement between the United Nations and Japan regarding the headquarters of the United Nations University (hereafter, United Nations University), .
(6) Have completed a curriculum at a foreign school, an educational facility designated in Item 4, or the United Nations University, has passed an equivalent to the examination and screening stipulated in Article 16-2 of the Standards for Establishment of Graduate Schools, and is recognized as having academic ability equal to, .

Be sure to contact each support office in charge of the program before the application period, if you think you have academic achievements equivalent to or higher than those having completed a master s course at a university and have been conferred a degree equivalent to a master

(3) Online application

Online Application Helpdesk (*Japanese speaking only)
Inquires accepted from 10:00 am to 6:00 pm (

I !Q ,))))"

Choose the method of payment from the following list. For applications from outside Japan, only credit card payments can be accepted.

1. Credit Cards: VISA, MasterCard, JCB, AMERICAN EXPRESS, Diners Club
2. Convenience Stores: 7-Eleven, LAWSON, MINISTOP, FamilyMart, Daily Yamazaki, Seicomart
3. Banking facilities ATM Pay-easy
4. Online Banking

(Note)

***In addition to the entrance examination fee, applicants must cover the remittance fees.**

*Applicants need to pay the Processing Fee (The amount of Processing Fee will be notified at the time of online application).

Important notices regarding the entrance examination fee

The examination fee, once paid, will not be refunded for any reason.

However, in cases (1) and (2) below, the examination fee is refundable after deducting the bank transfer fee. Therefore in such cas

from the university and send it to the address mentioned page 5 by

(4) Documents to be submitted (Specified forms can be downloaded from the Home Page.)

A	Academic Transcripts	Should be prepared and signed by the president/dean of the university from which you have graduated and sealed securely.
B	Certificate of (Expected) Graduation of Master s course	Should be prepared and signed by the president/dean of the university from which you have graduated, or expect to graduate *If you are a graduate or a current student of a university in China, please obtain 历证书查询 毕业证书 硕 证书 Graduates: Online Verification Report of Higher Education Qualification Certificate (历证书电 备) Expected Graduates: Online Verification Report of Student Record (线验证报) Please note that applicants must pay the issuing fee for the Online Verification Report (2 / certificate) by themselves. Also be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.
C	Curriculum vitae	(Use the official form.) All the schools/educational institutions you have enrolled in shall be written.
D	Thesis and/or Research Highlights	(Use the specified forms.) also submit Research Highlights together. Highlights. To be approximately 1,000 words in length.
E	Detailed Descriptions of Research Highlights	(Use the specified forms.) Describe your research achievements such as your academic papers, books/journals, if any, and attach copies of your academic papers.
F	Research Plan	(Use the official form) Submit the research plan in doctoral course written in about 400 English words.
G	Return Envelope	A self-addressed standard-size envelope with appropriate postage (stamps)

(5) Address for submission of application documents:

Please see page 5 of these application guidelines.

(6) Pre-arrangements for special needs applicants

Those who require special consideration for taking examinations and/or pursuing an academic program due to

4. Examination Date and Time

Examination Date	Examination	Time
One day between August 1 and August 24, 2023 *	Interview (about 60 minutes/person)	TBD*

*** Examination date, and time, and venue will be notified individually later.**

5. Screening Methods

Screening will be based on the results of an examination (interview).
Your academic transcripts
in the interview.

6. Announcement of Successful Applicants

12:00 (expected), September 1 (Fri.), 2023

(1) e bulletin board belonging to each support office (page 5) and the website of the Graduate School of Integrated Sciences for Life, Hiroshima University.
(2) The Graduate School will send letters of acceptance to successful applicants. If you do not receive the letter by Wednesday, September 6, even if your ID number is on the list of successful applicants, please inquire at each support office (page 5).
(3) Please note that the announcement of the website will be unofficial. Official announcement will be made via the bulletin board and the letters of acceptance. The office will not accept inquiries by phone regarding the results of the examinations.

7. Enrollment Fee and Tuition Fee

Enrollment Fee: ¥282,000
Tuition Fee: ¥535,800 per year (¥267,900 per semester)
(1) The enrollment fee, once paid, will not be refunded for any reason.
(2) If tuition is changed, students must pay the new tuition from the revision.
(3) Details of enrollment procedures, which will be conducted in mid-September, 2023 for October 2023 admission, and will be conduc71 266.3 Td..8 EM11.04rnan ⁄Langptember, 20

9. Hiroshima University Excellent Student Scholarships

To inspire students to study hard and to foster excellent human resources, Hiroshima University institutes its own scholarship system that supports students who show excellent performances at their research achievement and so on.

10. Personal Information

Applicants

the purpose of screening, announcement of results, and enrollment procedures. After enrollment, the University will manage the information to use it for student support activities (filing applications for scholarships and for waiving/discounting tuitions, etc.), and survey and research activities (for instance, surveys and analyses of applicants in order to improve screening systems). The University shall neither appropriate the information for any other purpose nor provide it to individuals/groups other than faculty or staff members of the University.

11. Examination Information Disclosure

The disclosure of examination results (considered as personal information) may be requested in the following manner:

(1) Obtain an examination information disclosure application form:
Write to the address below, indicating on the envelope or "Examination Information Disclosure Application Form Request," enclosing a self-addressed return envelope (long No. 3 type, 120 mm×235 mm) bearing the examinee's name, address and postal code and an 94 yen stamp.

(2) Complete the examination information disclosure application form, and send by post the documents listed below between April 1 and May 31, 2024(postmarked) to the address mentioned page 5.
Completed examination information disclosure application form
Original Examination Card for the admission examination of the Graduate School of , Hiroshima University (a copy will not be accepted; the original Card will be returned at the time of information disclosure)
Self-addressed return envelope (long No. 3 type, 120 mm × 235 mm) bearing the examinee's name, address and postal code and a 414 yen stamp.
Disclosure Applicants may be requested to correct any submitted documents found to be inappropriate.

(3) The Graduate School of will send a notice of examination information disclosure to the Disclosure Applicant by simplified registered mail within 30 days from the receipt of the application form.

12. Frontier Development Program for Genome Editing

Hiroshima University launched the Frontier Development Program for Genome Editing, an integrated -PhD course, with the aim of training PhD students to introduce innovations to society. This program consists of the Life Science Course (5-year curriculum) and the Medical Course (4-year curriculum) in order to provide students with opportunities to acquire basic and applied knowledge and to learn techniques of genome editing. This program enables students to master genome editing technology and connect it directly to industry.

Admission

Hiroshima University seeks students who wish to enroll in the Life Science Course (3-year doctoral program) .

*Life Science Course is a 5-year integrated PhD program for graduate students, however, there is also a 3-year doctoral program for postgraduate students. (Transfer Admission into 3rd year)

[Admission Requirements]

Those who took/will take the entrance examinations for October 2023 or April 2024 enrollment of the Doctoral Course of the Graduate School of Integrated Sciences for Life.

1. Prospective students of the program must have passed the above-mentioned examinations by the date of the interview as a first step.
2. All applicants must choose a prospective advisor from the list of faculty members and consult him/her about the relevance of the program to the activities they wish to conduct.
3. Examinees and successful examinees of the Early Completion Course of the Doctoral Program for working people of the Graduate School of Integrated Sciences for Life are not eligible for application to this program.

Please refer to the website for the admission information.
(URL https://genome.hiroshima-u.ac.jp/en/recruitment/index.html)

Life Science Course (3-year doctoral program)

In the first year of the program, students will learn basic and advanced genome editing techniques. From the second year, they will conduct research utilizing the knowledge they have acquired. Through basic courses on social

Graduate School of Education)
TEL 082-424-4689 6819
Email leading-program@office.hiroshima-u.ac.jp
URL https://genome.hiroshima-u.ac.jp/en/recruitment/index.html

13. Additional Notices

(1) Prior to application, please consult about the research programs with a faculty member under whom applicant wishes to study. (https://www.hiroshima-u.ac.jp/en/ilife/research)

the Foreign Exchange and Foreign Trade Act, and conducts strict examinations for acceptance of international students, etc. Therefore, please be advised that International applicants may be unable to receive their desired education or conduct their desired research due to the restriction by the above regulations.

(3) The certificates to be submitted must be the originals or certified photocopies. Uncertified photocopies would not be recognized as official certificates.

(4) No changes are permitted in the content of documents after their submission.
The examination fee will not be returned for any reason.

(5) Any forgery or falsification of the documents and/or academic fraud would result in cancellation of acceptance even after passing examination or admission.

(6) If an applicant could not graduate from the university before the admission date, he/she would lose the eligibility to enter our graduate school in this session.

(7) Application Guidelines and other related documents can be downloaded from the website of the Graduate School of Integrated Sciences for Life, Hiroshima University.

(8) If the program of an academic supervisor under whom you wish to study is changed due to program reorganization, the program you belong to may change.

(9) For further information, please contact the following each support office in charge of the program(s) (page 5).

14. Other Points of Attention

Smoking is prohibited entirely in All Hiroshima University campuses from January, 2020.

大学院統合生命科学研究科主指導教員一覧表

生物工学プログラム　　(1/4)

	Research Fields	Keywords

大学院統合生命科学研究科主指導教員一覧表

生物工学プログラム　　(2/4)

Academic Staff		Research Fields	Keywords
Professor	Masaki MIZUNUMA	Ca2+ Ca2+ We focus on mechanisms of Ca2+-dependent signaling using the unicellular eukaryote, Saccharomyces cerevisiae, as a model system. In particular, we are currently investigating aspects of calcium-dependent signal transduction in yeast, including cell-cycle, life span, and apoptosis. We also study on aging and life span in Caenorhabditis elegans.	Yeast, C. elegans, Lifespan
Visiting Professor	Takeshi AKAO	Applied genomics of sake yeast and the related industrial strains: Utilization of the genome information for exploration of unique DNA markers in each lineage, genetical study on characteristic features of valuable sake yeast strains and development of efficient breeding method.	Sake yeast, Applied genomics, Genetics of brewing characteristics
Visiting Professor	Atsuko ISOGAI	Studies on the aroma compounds in sake and shochu, aiming at identification of components responsible for their characteristics, elucidation of their formation mechanism, and development of control techniques.	Sake, Shochu, Aroma compounds
Visiting Professor	Kazuhiro IWASHITA	The genomics and metabolomics study of industrial microorganisms (especially Japanese national fungi of Aspergillus oryzae) to illustrate the primitive molecular mechanisms. The outcome of our researches should be applied to the design for new industrial strains and new process to produce beneficial metabolite and fermentation products.	Fermentation microorganism, Multiomics analysis, Innovation
Visiting Professor	Tomotake MORITA	To develop new bio-based materials, we are promoting the screening, characterization, and genetic modification of industrial microbes.	Bio-based materials, Industrial microbes, Applied microbiology
Associate Professor	Yoshiteru AOI	Our research goals are (i) bringing innovation to microbial cultivation, by development of radically new cultivation technology; (ii) isolation of environmentally important or potentially useful but yet-to-be cultured microorganisms; (iii) puzzling out the reason as to why most of the environmental microorganisms are recalcitrant for cultivation.	Unknown microbes, Unculturable microbes, Dormancy and resuscitation

大学院統合生命科学研究科主指導教員一覧表

生物工学プログラム (3/4)

Academic Staff		Research Fields	Keywords
Associate Professor	Kenji ARAKAWA	We aim to characterize the mechanism for the biosynthesis of bioactive compounds and their regulatory system in Streptomyces species. Isolation of new metabolites and characterization of biosynthetic enzymes are also studied in our laboratory.	Bioactive compounds Biosynthesis Secondary metabolism
Associate Professor	Takeshi IKEDA	Our research focuses on the interaction between biomolecules and inorganic materials. We are developing biointegrated devices/materials using solid-binding proteins/peptides as an interface.	Biomineralization Solid-binding proteins/peptides Biointegrated devices/materials
Associate Professor	Masaru UENO	DNA Study on molecular mechanisms of telomere maintenance and DNA repair and their applications for development of anti-cancer and anti-ageing agents.	Telomere, Cancer, Aging
Associate Professor	Setsu KATO	1 We analyze how microbial cells adapt and survive under various conditions using the single cell quantitative method. We are also interested in the process of cell death to identify the weakness of cellular homeostasis. These analyses will help us to find the principles of life and to create useful host cells for bioprocess.	1 Cellular homeostasis, Life and death, Single cell analysis
Associate Professor	Kenji KITAMURA	( ) ( ) Studies on modulation of cellular physiology in yeast by nutrients via regulation of peptide transporters. Searching for their non-peptide substrates, and exploration of novel bioactivities of dipeptides. Development of high-functioning yeast strains.	Yeast, Transporter, Amino acid/dipeptide
Associate Professor	Kazunori KUME	We would like to understand mechanisms of global cellular systems which are fundamental to cellular growth, development and reproduction of eukaryotic cells. Especially we are interested in cell polarity and organelle size and shape. For this research, we use the genetically amenable model organism, yeasts.	Cell sturucture, Organelle, Cell polarity
Associate Professor	Takahisa TAJIMA	Development of biocatalysts for efficient bio-conversion processes by using solvent tolerance microorganisms and psychrophile. Bioinformatic analyses of genome information and metabolites, and their utilization for metabolic engineering.	Bioproduction, Psychrophile, Metabolic engineering

大学院統合生命科学研究科主指導教員一覧表

食品生命科学プログラム (1/2)

Academic Staff		Research Fields	Keywords
Professor	Satoru UENO	Characterization of Physical properties and Clarification of kinetics for edible lipids.	, , Lipid, Crystallization, Polymorphic transfoemation
Professor	Kiyoshi KAWAI	Food processing, preservation, and texture analysis.	Food processing, Preservation, Texture analysis
Professor	Yoshihiro SAMBONGI	Studies on structure and function of microbial energy metabolism proteins.	Energy metabolism Extremophiles Protein structure
Professor	Masayuki SHIMADA	The study for understanding molecular and endocrine mechanisms of reproductive functions and developing novel reproductive technologies.	Reproductive biology, Molecular endocrinology, Reproductive technology
Professor	Tadashi SHIMAMOTO	Analysis of pathogenicity-related genes and drug resistance genes of foodborne pathogenic bacteria and development of norovirus inactivation method.	Foodborne pathogenic bacteria, Drug-resistant bacteria, Norovirus
Professor	Takuya SUZUKI	Physiological functions of nutrients and food factors.	Functional foods, Nutrition, Human health
Professor	Susumu NAKAE	Studies of pathogenesis of allergic and autoimmune disorders.	chronic inflammation, cytokines, mouse models for human diseases
Professor	Takeshi NAGANUMA	Study on applications of environmental biological resources.	, , Extreme environments, Extremophiles, Biodiversity
Professor	Masahide NISHIBORI	Studies on Mammalian and Avian Molecular Evolution, Phylogenetics and Geography using Their Information of Animal Genome, and Their Application to Agricultural Sciences.	, , Animal genetics, Molecular evolution, Molecular phylogenetic study
Professor	Shinichi NISHIMURA	Chemical biology using bioactive natural products	natural products chemistry, bioactive metabolites, chemical biology
Professor	Yoshio HAGURA	Analysis of mechanical and electrical properties of the food, and development of food processing and measurement techniques using those properties.	, , Mechanical properties, Electrical properties, Food processing
Professor	Kenji HOSONO	Socio-economic Agricultural Study about Sustainable Food Resource and Supply Chain.	Food production management, Food market, Sustainable development

大学院統合生命科学研究科主指導教員一覧表

食品生命科学プログラム (2/2)

Academic Staff		Research Fields	Keywords
Professor	Hiroyuki HORIUCHI	Basic and applied study using avian stem cells and genome editing technology in the agriculture field.	Avian, Stem cells, Genome editing
Professor	Noriyuki YANAKA	Molecular mechanisms of lifestyle-related diseases and nutritional science.	Lifestyle-related diseases, Food factor, Molecular nutrition
Visiting Professor	Masaki OKUDA	Research for production and utilization of high quality rice for sake making.	Alcoholic beverage, Sake rice, Properties of rice used for sake
Associate Professor	Hisashi OMURA	Studies on chemical interactions between plants and insects.	Chemical ecology, Semiochemical, Pheromone
Associate Professor	Yasushi OKINAKA	Studies on the interactions between aquatic organisms and their pathogens.	Pathogen, Fish, Infection mechanism
Associate Professor	Thanutchaporn KUMRUNGSEE	Food factors with muscle and brain disease prevention.	Food factors, Muscle, Brain
Associate Professor	Hisato KUNIYOSHI	Biochemical studies on metamorphosis and reproduction in aquatic animals.	Proteins, Bioactive substances, Instrumental analyses
Associate Professor	Haruhiko KOIZUMI	Clarification of the physical behavior of crystallization in food components, including pharmaceuticals.	Electric field, Crystal growth, Biopolymer
Associate Professor	Wakana TANAKA	Elucidation of molecular mechanisms that regulate plant development and their application for crop improvement.	Plant developmental genetics, Meristem, Rice
Associate Professor	Yosuke CHOMEI	Studies on resources using for sustainable development of food production and communities.	Farm management,Consumer ,Community
Associate Professor	Tatsuya NAKAYAMA	Studies on the pathogenicity of foodborne bacteria and the spread and prevention of antibiotic-resistant bacteria.	Foodbrone bacteria, Pathogenicity, Antibiotic-resistant bacteria
Associate Professor	Kouichi FUNATO	Molecular genetic studies of lipid dynamics and functions.	Lipid, Yeast, Molecular genetics
Visiting Associate		Development of microorganisms for the brewing, and enzymatic research for its aplications.	Enzyme, Brewing, Microorganism
Lecturer	Makoto HIRAYAMA	Studies on function and application of bioactive compounds from marine organisms.	Lectin, Glycan, Anti-virus agent
Lecturer	Yukichi FUJIKAWA	Biochemical studies on gene expression and function of stress-responsible enzymes in higher plants.	Enzyme, Gene expression, Biochemistry

大学院統合生命科学研究科主指導教員一覧表

生物資源科学プログラム (1/2)

Academic Staff		Research Fields	Keywords
Professor	Naoki ISOBE	Immunology and endocrinology in mammary gland of ruminants.	Mastitis, Antimicrobial peptide, Innate immunity
Professor	Akihiro UEDA	Improvement of environmental stress tolerance in higher plants and development of utilization technologies of plant growth promoting microbes.	Plant nutrition, Environmental stress, Plang growth promoting microbes
Professor	Tetsuya UMINO	Stock enhancement and conservation resources of aquatic animal.	Aquaculture, Stock enhancemnet, Aquatic animal
Professor	Susumu OHTSUKA	Biodiversity, phylogeny, evolutionary biology and conservation ecology of marine invertebrates.	Marine invertebrate, Biodiversity, Conservation
Professor	Taketo OBITSU	Nutrition and feed utilization in ruminants.	Digestion, Protein metabolism, Energy metabolism
Professor	Kazuhiko KOIKE	Coastal biological processes of Seto-Inland Sea, coral reefs and mangrove swamps based on primary producers (various microalgae).	Microalgae, Phytoplankton, Photosynthesis
Professor	Yoichi SAKAI	Behavioral ecology of fish reproduction.	Social structure, Mating tactics, Field survey
Professor	Masayuki SHIMADA	The study for understanding molecular and endocrine mechanisms of reproductive functions and developing novel reproductive technologies.	Reproductive biology, Molecular endocrinology, Reproductive technology
Professor	Toshihisa SUGINO	Effects of Feeding management on dairy cattle health and performance.	Dairy cattle, Nutrition and feeding, Metabolism
Professor	Rumi TOMINAGA	Studies on cell differentiation and development in plants.	Epidermal cell, Root hair, Transcription factor
Professor	Takahiro YONEZAWA	Evolutionary genomics on the domestic and wild animals	phylogeny, demography, selection
Professor	Jun WASAKI	Plant-microbial interactions in the vicinity of root and nutrient dynamics.	Rhizosphere, Plant physiology, Nutrient dynamics
Associate Professor	Satoshi ASAOKA	Assessment and restoration of aquatic environments using the tools of analytical chemistry.	Environmental analytical chemistry, Environmental remediation, Aquatic environment
Associate Professor	Aki KATO	Aquaculture and conservation of algal resources.	Coralline algae, Edible seaweeds, Climate change

大学院統合生命科学研究科主指導教員一覧表

生物資源科学プログラム　　(2/2)

Academic Staff		Research Fields	Keywords
Associate Professor	Shin-ichi KAWAKAMI	Research of the brain mechanisms of feeding, drinking, and aggressive behavior in avians.	Animal behavior, Hypothalamus, Chicken
Associate Professor	Yuzo KUROKAWA	Research on healthy life cycle of dairy cows.	Dairy cow, Life cycle, Antioxidant capacity, Milk production
Associate Professor	Hidetoshi SAITOU	Researches on population ecology of macrobenthos in freshwater and shallow seawater zones.	Ecology, Benthos, Alien species
Associate Professor	Takeshi TOMIYAMA	Fish life history and stock dynamics.	Fisheries ecology, Early life history, Estuaries and coastal
Associate Professor	Toshinori NAGAOKA	Studies on soil functions in plant production.	, , Soil, Nutrient dynamics, Organic matter
Associate Professor	Yoshiaki NAKAMURA	Preservation of mammalian and avian genetic resources on the basis of germ cell manipulation.	, , Germ cells, Cryopreservation, Genetic modification
Associate Professor	Toshiya HASHIMOTO	Understanding of the marine environment using the filed observation and numerical simulation model.	Marine environment, Data analysis, Ecosystem model
Associate Professor	Masayuki YOSHIDA	Biological basis of emotion, learning, and mind in animals.	Animal psychology, Emotion, Neuroscience
Associate Professor	Lawrence M. LIAO	Taxonomy, phylogenetic systemtics and biogeography (phytogeography) of marine algae in the tropics and subtropical regions.	Algology/Phycology, Limnology, Museum studies
Associate Professor	Kaori WAKABAYASHI	Reproduction and growth of marine invertebrates.	Seed production, Larval development, Embryology

大学院統合生命科学研究科主指導教員一覧表

生命環境総合科学プログラム (1/2)

Academic Staff		Research Fields	Keywords
Professor	Atsuhiko ISHIDA	Biochemistry on enzymes and proteins which mediate protein phosphorylation and dephosphorylation.	Enzyme, Neuron
Professor	Yasuhiro ISHIHARA	Glial function in health and disease.	Neuropharma-toxicology, Glia, Model animals
Professor	Kazuyoshi UKENA	Study on the physiological functions of neuronal substances regulating appetite and energy homeostasis.	Neuroendocrinology, Neuropeptide, Appetite
Professor	Yukari KUGA	Plant and microbe symbioses in soil ecosystem.	- Mycorrhiza, Soil-borne disease, Cellular-ecological functions
Professor	Akiko SATOH	The mechanism of the polarized vesicle trafficking in neurons.	, , Golgi units, Photoreceptors, Drosophila melanogaster
Professor	Kazuhiko TAKEDA	Environmental dynamics and analysis of trace compounds and reactive oxygen species in the atmosphere and hydrosphere.	Environmental Analytical Chemistry, Reactive Oxygen Species, Trace Pollutants
Professor	Takayuki NAKATSUBO	Roles of plants, animals and microorganisms in terrestrial ecosystems.	Ecosystem ecology, Plant ecology, Environmental coservation
Professor	Toshihiro YAMADA	Conservation of organisms based on ecology.	Biodiversity conservation, Population dynamics, Tropical forests
Professor	Jun WASAKI	– Plant-microbial interactions in the vicinity of root and nutrient dynamics.	Rhizosphere, Plant physiology, Nutrient dynamics
Professor	Masumi VILLENEUVE	Thermodynamic studies on interfacial behavior of bio-related substances using model cell membranes, basic science related to drug delivery.	Interface Chemistry, Thermodynamics, Membranes
Associate Professor	Yoko IWAMOTO	Biogeochemical cycles between the atmosphere and ocean, and their impact on climate.	Aerosol, Cloud, Biogeochemistry
Associate Professor	Akio TSUCHIYA	Climate change caused by deforestation of rainforests in Amazonia.	Small climatology, Biometeorology, Dendro-climatology
Associate Professor	Mitsuyo SAITO	- - Environment-geology-ecosystem interactions in terrestrial to coastal waters.	Groundwater, Coastal ecosystems, Environmental geology

大学院統合生命科学研究科主指導教員一覧表

生命環境総合科学プログラム (2/2)

Academic Staff		Research Fields	Keywords
Associate Professor	Miyabi NAKABAYASHI	Behavior and ecology of wildlife	Tropical rainforest, Ecology, Mammalogy
Associate Professor	Tatsuo NEHIRA	Research of structural organic chemistry in life science.	Analytical organic chemistry, Natural product chemistry, Circular dichroism
Associate Professor	Akira HIKOSAKA	Genomic, symbiotic and embryonic studies on metazoan evolution.	, , Evolutionary Zoology, Acoelomorpha, Metazoa
Lecturer	Motomu TODA	Energy, water and carbon exchange between atmosphere and forest ecosystems.	Flux, Modelling, Climate change

大学院統合生命科学研究科主指導教員一覧表

基礎生物学プログラム (1/2)

Academic Staff		Research Fields	Keywords
Professor	Takuya IMAMURA	Understanding epigenomic mechanisms that underlie the development of primate brain.	, , RNA primate, brain, non-coding RNA
Professor	Hajime OGINO	Genomic and epigenetic regulation of development and regeneration (sensory organs and central nervous system) in vertebrates. Molecular mechanisms of genome evolution and environmental adaptation in amphibians.	Development, Regeneration, Evolution
Professor	Yutaka KIKUCHI	Studies on tumor microenvironment network. Analysis of Chromatin 3D Structure.	RNA Tumor microenvironment, Chromatin, long non-coding RNA
Professor	Makoto KUSABA	Molecular mechanism of leaf senescence, Molecular genetics in the genus Chrysanthemum, Genetic resources of chrysanthemum and cycad.	Molecular genetics, Leaf senescence, Chrysanthemum
Professor	Takahiro CHIHARA	(Molecular mechanism underlying neural network formation, maturation and maintenance. Genetic studies to reveal molecular mechanism for the interaction between environment (nutrition, odor and various stress etc.) and individual condition (longevity and behavior etc.).	Neural network, Olfaction, Longevity
Professor	Toshinori HAYASHI	Study of organ regeneration and development using urodele amphibian. Regulatory mechanism of cell proliferation in organ regeneration.	Iberian ribbed newt, Organ regeneration, Development
Professor	Tomio YAMAGUCHI	Phylogeny, taxonomy and ecology of bryophytes.	Bryophytes, Taxonomy, Ecology
Associate Professor	Takeshi IGAWA	Genome evolution underlying speciation and environmental adaptation of amphibians.	Amphibians, Adaptive evolution, Genomics
Associate Professor	Tatsuya UEKI	Study on the mechanism of metal ion accumulation and adhesion by marine invertebrate animals.	, Physiology, Metal ion, Adhesion
Associate Professor	Misako OKUMURA	. Molecular mechanism of phototransduction. Molecular mechanism of phenotypic plasticity.	, , Nematode, Photoreceptor, Phenotypic plasticity
Associate Professor	Masaki SHIMAMURA	Phylogeny, taxonomy morphology and ecology of bryophytes. Diversity and evolution of cell division system of land plants.	Bryophytes, Plant taxonomy, Morphology
Associate Professor	Atsushi SUZUKI	Molecular mechanisms of vertebrate early development, maintenance/differentiation of stem cells, and tissue regeneration.	Early development, Stem cell, Regeneration

大学院統合生命科学研究科主指導教員一覧表

基礎生物学プログラム (2/2)

Academic Staff		Research Fields	Keywords
Associate Professor	Kunifumi TAGAWA	Study to elucidate the origin and evolution of Deuterostomia and Bilateria by analysing molecular developmental biology and comparative genomics of marine organisms such as Enteropneust hemichordate and Acoel flatworms.	Marine Organisms, EvoDevo, Comparative genomics
Associate Professor	Hiromi TSUBOTA	Studies of plants and vegetation focusing on the ecology, evolutionary biology, biogeography, phytosociology, and conservation of biotas on islands surrounded by ocean and its related area.	Biodiversity, Phytogeography, Molecular phylogeny
Associate Professor	Kozue HAMAO	Molecular mechanisms of cytoskeletal regulation and cell division in animal cells.	Cytoskeleton, Mitosis, Cytokinesis
Associate Professor	Nobuaki FURUNO	Molecular mechanism of oogenesis and analyses of the unique cell cycle mechanism of oocyte maturation(meiosis) and early development. Study of the molecular mechanism of regeneration and development of the limb formation.	Oogenesis,Oocyte maturation,Cell cycle,Morphogenesis,Limbdevelopment
Associate Professor	Ikuo MIURA	Studies on Evolutionary Genetics of amphibians (genome and phenotypic evolution and biodiversity), and sex and reproduction.	Phyletic evolution, Sex, Genome recognition
Lecturer	Kazuki MORIGUCHI	Molecular mechanisms of bacteria-eukaryotes interactions. Molecular mechanisms at horizontal gene transfer, and the spread and diversity of genes caused by it.	Bacteria, Horizontal gene transfer, Interaction, Gene introduction

大学院統合生命科学研究科主指導教員一覧表

数理生命科学プログラム (1/3)

Academic Staff		Research Fields	Keywords
Professor	Makoto IIMA	Theoretical and experimental study of complex flows and models such as swimming/flying problems based on mathematical science.	Fluid mechanics, Swimming/Flying, Vortex dynamics
Professor	Shunsuke IZUMI	MALDI SALDI-IMS Development of MALDI matrix for protein analysis and search for chemical repellents using SALDI-IMS method.	, , SALDI-IMS MALDI matrix, Proteomics, SALDI-IMS method
Professor	Atsushi SAKAMOTO	(1) ; (2) ; (3) ( ) (1) Molecular mechanisms for stress responses and adaptation in plants; (2) Metabolic plasticity-based strategies for plant growth and survival; (3) Basic and applied research on plant function towards its agricultural and industrial applications (improved performance under stress; algal bioenergy innovation, etc.).	Plant molecular function, Stress response, Metabolism and molecular physiology
Professor	Shin-ichi TATE	NMR Exploring functional mechanisms of intrinsically disordered proteins mainly with NMR. Studies on protein droplet formation within cells. Three-dimensional structure analysis of chromatins inside the cell nucleus.	NMR NMR, Intrinsically disordered proteins, The three-dimensional structure of chromatin in a cell nucleus
Professor	Satoshi NAKATA	Research on phenomena which exhibit spatio-temporal development under nonequiliburim conditions, e.g., chemical oscillation, rhythm and pattern formation, self-organization, nonlinear phenomena (synchronization, bifurcation, hysteresis), and self-propulsion.	Self-organization, Pattern formation, Oscillation
Professor	Koichi Fujimoto	. , - - - - . . Theoretical study (mathematical modeling and data analysis) of evolving multi-level dynamics (gene expression, shape, and behaviors) in plants, animals, and microbes.	Theoretical Biology, Complex systems, Biophysics, Evolution, Diversity, Multi-scales
Professor	Naoki HONDA	/ Data-driven mathematical modeling of various biological phenomena. Development of data analysis methods based on machine learning (statistical learning theory). Gene expression, cytoskeleton, immune systems, embryonic development, neural circuits, decision making, emotion/conflict.	Data-driven biology, Theoretical biology, Mathematical modeling, Machine learning
Professor	Takashi YAMAMOTO	Development of genome editing technology for various organisms. Generation of disease model cells and animals. Development of biofuel using microalgae. Analysis of molecular mechanisms during animal development.	Genome editing, Disease model, Animal development
Professor (Sp.Appt.)	Hidemasa BONO	Development of database technologies for genome editing and functional genomics by bioinformatic approach.	Genome editing, Bioinformatics, Functional genomics
Visiting Professor	Tomonobu M WATANABE	Stem cell researches with development of optical measurement technologies to quantify biological phenomena, and medical/industrial applications of them.	Optical spetcroscopy, quantitative biology, biophysics, stem cell

大学院統合生命科学研究科主指導教員一覧表

数理生命科学プログラム (2/3)

		Research Fields	Keywords
Associate Professor	Akinori AWAZU	Theoretical molecular and cell biology : Theoretical and experimental studies of genome dynamics, gene regulation, development, and morphogenesis.	Phenomenal mathematical modeling, Experiment data driven modeling, Experiments for
		, ” ”	
		”	
Associate Professor	Isamu OHNISHI	In my laboratory, we study and research mathematical scienece of Life phenomena and, moreover, nonlinear phenomena related to Life activity as a laboratory of Nonlinear mathematical Science related to Life, which is among mathematical science as ``mathematics in a broad sense''. Mathematics in a broad sense means “to make dynamical mathematical modeling of phenomena, and based on that, mathematical discussions (mainly focusing on the relationship between the mathematical scientific structures and their functions of systems. It includes activities that lead to interpretations and explanations of the original things, sometimes paradoxical conclusions.	Nonlinear mathematical Science related to Life
		DNA	
		HIV	
		X	X
Associate Professor	Katsuo KATAYANAGI	Three dimensional structure and function of Protein by protein X-ray-crystallography, and, Molecular evolution of protein derived from X-ray structure of artificial proteins.	3D structure of protein, X-ray crystallography, Synchrotron radiation
Associate Professor	Nen Saito	From the viewpoints of biophysics and mathematical biology, we aim to understand various biological phenomena by performing mathematical modeling , large-scale numerical computation and machine learning analysis, etc.	mathematical modeling, biophysics, theoretical biology
Associate Professor	Naoaki SAKAMOTO	Research for transcriptional regulation of morphogenetic genes, nuclear dynamics of gene, chromatin and chromosome during development, and mechanism of insulator activity, using the sea urchin development as a model.	Sea urchin development, Transcription, Nuclear dynamics
Professor	Tetsushi SAKUMA		

大学院統合生命科学研究科主指導教員一覧表

数理生命科学プログラム (3/3)

Academic Staff		Research Fields	Keywords
Associate Professor	Takuma SUGI	Behavioral systems biology and neural network aging.	Behavior, Imaging, Neural network aging
Associate Professor	Yoshihisa FUJIWARA	Effects of environmental factors of light, magnetic field, and gravity (microgravity and hypergravity) on biological phenomena and reactions of micro-organism such as Aspergillus oryzae. Influence of their factors on reactions, micro-structure, and function of chemical functional nano-materials.	Effecs of light, Magnetic field and gravity Photochemistry Aspergillus oryzae

大学院統合生命科学研究科主指導教員一覧表

生命医科学プログラム　　(1/2)

Research Fields

大学院統合生命科学研究科主指導教員一覧表

生命医科学プログラム (2/2)

Academic Staff		Research Fields	Keywords
Visiting Professor	Tomonobu M WATANABE	Stem cell researches with development of optical measurement technologies to quantify biological phenomena, and medical/industrial applications of them.	Optical spetcroscopy, quantitative biology, biophysics, stem cell
Associate Professor	Takeshi IGAWA	Genome evolution underlying speciation and environmental adaptation of amphibians.	Amphibians, Adaptive evolution, Genomics
Associate Professor	Masaru UENO	DNA Study on molecular mechanisms of telomere maintenance and DNA repair and their applications for development of anti-cancer and anti-ageing agents.	Telomere, Cancer, Aging
Associate Professor	Misako OKUMURA	. Molecular mechanism of phototransduction. Molecular mechanism of phenotypic plasticity.	, , Nematode, Photoreceptor, Phenotypic plasticity
Associate Professor	Kazunori KUME	Study on the control mechanisms of cell structure (organelles and cell polarity etc.) which ensures cellular functions.	Cell structure, Organelle, Cell polarity
Associate Professor	Naoaki SAKAMOTO	Research for transcriptional regulation of morphogenetic genes, nuclear dynamics of gene, chromatin and chromosome during development, and mechanism of insulator activity, using the sea urchin development as a model.	Sea urchin development, Transcription, Nuclear dynamics
Associate Professor	Takuma SUGI	, Behavioral systems biology and neural network aging.	, , , Behavior, Imaging, Neural network aging
Associate Professor	Kozue HAMAO	Molecular mechanisms of cytoskeletal regulation and cell division in animal cells.	Cytoskeleton, Mitosis, Cytokinesis
Associate Professor	Masayuki YOSHIDA	Biological basis of emotion, learning, and mind in animals.	Animal psychology, Emotion, Neuroscience