Application Guidelines for Admission Examination to the Master's Program Starting in October 2025 and April 2026

Special Selection for Foreign Students

2025

Graduate School of Bioresources, Mie University

1. Number of students to be enrolled

Major	Course	Laboratories	Number of students
Sustainable Resource Sciences	Agrobiology	Plant Molecular Genetics and Breeding, Crop Science, Horticultural Crop Physiology, Animal Production, Grassland and Animal Feed Production, Phytopathology, Insect Ecology,	A Few
	Forest Resources and Environmental Science	Forest Conservation Ecology, Forest Mycology, Soil Science and Plant Nutrition, Forest environmental science, Forest Planning for the Environment, Torrent and Hillside Conservation Technology, Forest Engineering, Wood Science and Technology, Wood Chemistry and Technology, Nature and Coexistence*	
	International Regional Resource Science	Economic System of Bioresources, Global Plant Resource Science, Global Resource Utilization Science	
Environmental Science and Technology	Geosciences	Atmosphere and Climate Dynamics, Meteorological Analysis and Prediction, Ocean Climate, Ocean and Climate Change, Earth System Evolution, Water Environment and Natural Disasters	A Few
	Environment Oriented Information and System Engineering	Environmental Information and Technology, Productive Environment System, Energy Utilization Engineering, Agricultural and Food Systems	
	Irrigation, Drainage and Rural Engineering	Rural Planning, Soil Resources Engineering, Water Resource Engineering, Irrigation Facilities Engineering, Vadose Zone Hydrology, Soil Physics and Hydrology	
Life Sciences	Biochemistry and Biotechnology	Molecular and Cellular Biology, Molecular Bioinformatics, Biofunctional Chemistry, Medicinal Chemistry, Bioorganic Chemistry, Bio-regulatory chemistry, Bioinformation and Food Engineering, Food Chemistry, Applied Microbial Genetics, Nutritional Chemistry, Fermentation Biology, Food Function*	A Few
	Marine Life Science and Molecular Chemistry	Marine Biochemistry, Molecular Chemistry and Aquatic Materials, Biophysical Science, Marine Biology, Marine Microbiology, Quality in Marine Products, Marine Food Chemistry	
	Marine Biology	Biological Oceanography, Fish Physiology, Phycology, Shallow Sea Aquaculture, Fish Diseases, Fish Stock Enhancement, Marine Ecology, Biology of Aquatic Bioresources, Molecular Ecology of Aquatic Animals, Fish Population Dynamics, Fisheries Ethology, Applied Marine Informatics, CetaceanResearch, Developmental and Metabolism Biology*	

*Cooperative Research Institutes

Note) Before making an application, please make sure to contact your planned supervising teacher or a supervising teacher of the field of education and research you are applying for in advance.

2. Schedule for the admission examination

【Starting in October2025】

	Application Period	Examination Date	Result Announcement Date
Schedule	July 7 (Mon.), 2025 to July 11 (Fri.), 2025 (It should be reached no later than July 11 by the postal mail)	August 19 (Tue.),2025 (Occasional date: August 20 (Wed.), 2025)	September 12 (Fri.), 2025
Notes	Acceptance Hours: 9:00 a.m. to 5:00 p.m. (Applications via mail must arrive within the above period)	On the day of the entrance examination, make sure to bring your Ticket for Exam and enter the examination venue.	The examinees numbers of successful examinees will be posted in the entrance hall of the Graduate School of Bioresources around 10:00 a.m., and those who have passed will also be notified via mail. After results are announced, the examinees numbers of successful examinees will be posted on the website of Graduate School of Bioresources (http://www.bio.mie-u.ac.jp/). We will not respond to any inquiries via phone, etc. concerning the results.

【Starting in April2026】

	Application Period	Examination Date	Result Announcement Date
First Recruitment	July 7 (Mon.), 2025to July 11 (Fri.), 2025 (It should be reached no later than July 11 by the postal mail)	August 19 (Tue.), 2025 (Occasional date: August 20 (Wed.),2025)	September 12 (Fri.), 2025
Second Recruitment	December 8 (Mon.), 2025to December 12 (Fri.), 2025 (It should be reached no later than December 12 by the postal mail)	January 20 (Tue.), 2026 (Occasional date: January 21 (Wed.),2026)	February 13 (Fri.), 2026
Notes	Acceptance Hours: 9:00 a.m. to 5:00 p.m. (Applications via mail must arrive within the above period)	On the day of the entrance examination, make sure to bring your Ticket for Exam and enter the examination venue.	The examinees numbers of successful examinees will be posted in the entrance hall of the Graduate School of Bioresources around 10:00 a.m., and those who have passed will also be notified via mail. After results are announced, the examinees numbers of successful examinees will be posted on the website of Graduate School of Bioresources (http://www.bio.mie-u.ac.jp/). We will not respond to any inquiries via phone, etc. concerning the results.

3. Selection Method

Students are selected for admission based on the comprehensive examination of academic achievement tests, application materials, and interview-based assessment.

Special Selection for Foreign Students

Subjects	Hours	Remarks
Foreign Language (Japanese or English)	10:30 a.m.-12:00 p.m.	Students may bring one (1) language dictionary. (Electronic dictionaries are not permitted.) For more details, please refer to "7. Notes" on page 13.
Interview	Starts at 1:00 p.m.	Students will be interviewed about their academic achievements, research performance, etc.

4. Applicant Eligibility

【Starting in October2025】

[Special selection for Foreign Students]

Non-Japanese nationals who possess the Japanese-language ability that is required for taking courses may apply, providing that one of the following requirements is met:

(1) Applicant has graduated or expects to graduate by September 30, 2025 from a university, as stipulated in Article 83 of the School Education Act (Act No. 26 of 1947).

(2) Applicant has been or expects to be awarded by September 30, 2025 a bachelor's degree, as stipulated in Article 104, paragraph 7 of the School Education Act.

〔Applicant has been or expects to be awarded a degree from the National Institution for Academic Degrees and Quality Enhancement of Higher Education.〕

(3) Applicant has completed or expects to complete by September 30, 2025 a 16-year school education program in a foreign country.

(4) Applicant has completed or expects to complete by September 30, 2025 a 16-year school education program in Japan through a foreign school's distance-learning course.

(5) Applicant has completed or expects to complete by September 30, 2025 a foreign university program in Japan that has been specified by Japan's minister of education, culture, sports, science, and technology. The program must have been offered by an educational facility that is operated as part of the foreign country in question's educational system (subject to the condition that students who are completing such a program are considered to have finished a 16-year school education program in the foreign country in question).

(6) Applicant has been awarded or expects to be awarded by September 30, 2025 a degree that is equivalent to a bachelor's degree upon completion of a program that consists of at least 3 years of study at an overseas university or other overseas school. (This criterion is limited to those whose comprehensive situation with respect to educational and research activities has either received evaluation from a person who was authorized by that country's government or its related institutions or which has been separately designated as being equivalent to such by Japan's minister of education, culture, sports, science, and technology. This includes applicants who have completed distance learning programs at said overseas schools while living in Japan and those who have completed programs at educational institutions that are located in Japan, follow the same

education system as overseas schools, and have been specifically designated by the minister of education, culture, sports, science, and technology.)

(7) Applicant has completed or expects to complete by September 30, 2025 a specialized program at an advanced vocational school on or after the date specified by Japan's minister of education, culture, sports, science, and technology. The program must also have been specified by the minister (and is subject to the following condition: the program must require at least 4 years to complete and must also satisfy other criteria as specified by the minister).

(8) Other persons deemed eligible by Japan's minister of education, culture, sports, science, and technology may apply (see 1953 Notification No. 5, Ministry of Education, Science and Culture), providing they possess academic ability that is equivalent to that of a university graduate's, as described below:

(Applicant has completed/graduated from a long-term course of study at one of the following, as set forth in the former Universities Act: the former Higher Normal School, upper secondary school, advanced course, Higher Normal School, Women's Higher Normal School, National Defense Academy of Japan, National Defense Medical College, National Fisheries University, Japan Coast Guard Academy, Meteorological College, or Polytechnic University.)

(9) Applicant has been admitted to the graduate school under the provisions of Article 102, paragraph 2 of the School Education Act and has been deemed to possess academic ability that is well-suited to receiving graduate-level education at this school.

(Applicant has been admitted to the graduate school by transfer from another graduate school at a different university and has been deemed to possess academic ability that is well-suited to receiving graduate-level education at this school.)

(10) Applicant has been enrolled at the university for at least three years as of September 30, 2025 and has completed a 15-year course of study in a country other than Japan. This criterion includes applicants who have undertaken such study through a distance education program that was offered by a university that is located outside of Japan or at an educational facility in Japan that is run by a foreign school and is recognized by Japan's minister of education, culture, sports, science, and technology. The course of study must have been completed after the offering school was recognized by the minister, and the applicant must be recognized by this graduate school as having an outstanding academic record.

(11) Applicants must be aged 22 or older by September 30, 2025 and must be recognized, through this school's admissions eligibility screening, as possessing academic ability that is at least equal to that of a university graduates'.

Note 1) Applicants whose qualifications reflect (9), (10), or (11) must undergo application eligibility certification.

【Starting in April 2026】

[Special Selection for Foreign Students]

Non-Japanese nationals who possess the Japanese-language ability that is required for taking courses may apply, providing that one of the following requirements is met:

(1) Applicant has graduated or expects to graduate by March 31, 2026 from a university, as stipulated in Article 83 of the School Education Act (Act No. 26 of 1947).

(2) Applicant has been or expects to be awarded by March 31, 2026 a bachelor's degree, as stipulated in Article 104, paragraph 7 of the School Education Act.

〔Applicant has been or expects to be awarded a degree from the National Institution for Academic Degrees and Quality Enhancement of Higher Education.〕

(3) Applicant has completed or expects to complete by March 31, 2026 a 16-year school education program in a foreign country.

(4) Applicant has completed or expects to complete by March 31, 2026 a 16-year school education program in Japan through a foreign school's distance-learning course.

(5) Applicant has completed or expects to complete by March 31, 2026 a foreign university program in Japan that has been specified by Japan's minister of education, culture, sports, science, and technology. The program must have been offered by an educational facility that is operated as part of the foreign country in question's educational system (subject to the condition that students who are completing such a program are considered to have finished a 16-year school education program in the foreign country in question).

(6) Applicant has been awarded or expects to be awarded by March 31, 2026 a degree that is equivalent to a bachelor's degree upon completion of a program that consists of at least 3 years of study at an overseas university or other overseas school. (This criterion is limited to those whose comprehensive situation with respect to educational and research activities has either received evaluation from a person who was authorized by that country's government or its related institutions or which has been separately designated as being equivalent to such by Japan's minister of education, culture, sports, science, and technology. This includes applicants who have completed distance learning programs at said overseas schools while living in Japan and those who have completed programs at educational institutions that are located in Japan, follow the same education system as overseas schools, and have been specifically designated by the minister of education, culture, sports, science, and technology.)

(7) Applicant has completed or expects to complete by March 31, 2026 a specialized program at an advanced vocational school on or after the date specified by Japan's minister of education, culture, sports, science, and technology. The program must also have been specified by the minister (and is subject to the following condition: the program must require at least 4 years to complete and must also satisfy other criteria as specified by the minister).

(8) Other persons deemed eligible by Japan's minister of education, culture, sports, science, and technology may apply (see 1953 Notification No. 5, Ministry of Education, Science and Culture), providing they possess academic ability that is equivalent to that of a university graduate's, as described below:

〔Applicant has completed/graduated from a long-term course of study at one of the following, as set forth in the former Universities Act: the former Higher Normal School, upper secondary school, advanced course, Higher Normal School, Women's Higher Normal School, National Defense Academy of Japan, National Defense Medical College, National Fisheries University, Japan Coast Guard Academy, Meteorological College, or Polytechnic University.〕

(9) Applicant has been admitted to the graduate school under the provisions of Article 102, paragraph 2 of the School

Education Act and has been deemed to possess academic ability that is well-suited to receiving graduate-level education at this school.

(Applicant has been admitted to the graduate school by transfer from another graduate school at a different university and has been deemed to possess academic ability that is well-suited to receiving graduate-level education at this school.)

(10) Applicant has been enrolled at the university for at least three years as of March 31, 2026 and has completed a 15-year course of study in a country other than Japan. This criterion includes applicants who have undertaken such study through a distance education program that was offered by a university that is located outside of Japan or at an educational facility in Japan that is run by a foreign school and is recognized by Japan's minister of education, culture, sports, science, and technology. The course of study must have been completed after the offering school was recognized by the minister, and the applicant must be recognized by this graduate school as having an outstanding academic record.

(11) Applicants must be aged 22 or older by March 31, 2026 and must be recognized, through this school's admissions eligibility screening, as possessing academic ability that is at least equal to that of a university graduates'.

Note 1) Applicants whose qualifications reflect (9), (10), or (11) must undergo application eligibility certification.

5. Application forms, etc.

[Applicant eligibility]: Special selection for Foreign Students (1) to (8)

(1) Applicants are required to submit the following documents. Please download the application forms from the website of Graduate School of Bioresources, and print them with A4 size. Documents marked with ○ must be submitted by all applicants. Not all applicants will submit documents marked with △, so please read remarks carefully.

Application Forms	Remarks	Special Selection for Foreign Students
Application Form	【Designated Form】Please write the required information on the form designated by the graduate school.	○
Photo Card and Ticket for Exam	【Designated Form】Please attach a recent photograph taken within last three months.	○
CV	【Designated Form】Please write the required information on the designated form. (Only for Foreign Students)	○
Certificate of (expected) Graduation	Certificate of (expected) graduation from undergraduate university. ***Regular students who are now studying at the Faculty of Bioresources, Mie University, do not need to submit this. All others must apply.**	△
Academic Transcript from Undergraduate University or School, etc.	Must be completely sealed by issuer.	○
Certificate of Degree, or Documents that Certify Expected Completion of Degree	Please submit the certificate of degree. Applicants who expect to be awarded a degree must submit a certificate of expected graduation such as a certificate of scheduled application for award of degree, or a certificate of expected completion.	○
Reason for Application	【Designated Form】Using the form designated by the graduate school, describe why you want to be admitted, why you want to study, and do research at the Graduate School of Bioresources. Your purpose (plans) should be summarized in approximately 300 words if using English or 1,000 characters if using Japanese.	○
Summary of Research Achievements	***Regular students who are now studying at the Faculty of Bioresources, Mie University, do not need to submit this. All others must apply.** Write your study topic on line 1 and your name on line 2. Please summarize your research achievements (or graduate thesis) using no more than one A4 page (approximately 300 words if using English or 1,000 characters if using Japanese; drawings, charts, etc., may also be included). Applicants who expect to graduate from a university other than the Faculty of Bioresources, Mie University and those who expect to be granted a degree from the National Institution for Academic Degrees and Quality Enhancement of Higher Education may describe the progress status of their researches.	△

Documentation of Research Achievements	Applicants who have authored works, academic papers, technical reports, presentations at academic meetings, patents, etc., should attach documentation indicating those. In case of collaborative research, applicants should attach materials that clearly state the portion of research for which they can be credited.	△
Stamped Self-addressed Envelope	On the envelope sized 240×332, write your name, address, and postal code, and affix postage worth 440 yen (express letter).	○
Admission Application Fee	Admission application fee: 30,000 yen **(This is not required for a candidate of MEXT scholar, ie. Japanese government scholarship student.)**	○
Admission Application Payment Receipt	【Designated Form】When making a transfer, please read 【Delivery method】 and 【Notes】 written on the payment slip. Affix the wire transfer confirmation form, which must bear the financial institution's seal of receipt, to the application form's "admission application payment receipt" field, and submit it along with the other application materials.	○
Health Certificate	【Designated Form】Applicants who reside outside of Japan during the application period (including Japanese nationals) and will be coming to Japan to take the examination should submit a health certificate using the format prescribed by the graduate school. Details are available via the URLs below. URL (Japanese) : https://www.mie-u.ac.jp/exam/health/health2/index.html URL (English) : https://www.mie-u.ac.jp/exam/health/health3.html	△
Other	**Foreign students must submit a copy of their visa and passport.**	○

(2) Methods for applying: Send application forms by postal mail (registered express letter) or submit them in person.

(3) Address for the submission of mailed applications: Student Affairs Section, Graduate School of Bioresources, Mie University, 1577 Kurimamachiya-cho, Tsu City 514-8507, Mie, Japan, TEL +81-59- 231-9631

[Applicant eligibility]: Special Selection for Foreign Students (9) to (11)

(1) Applicants are required to submit the following documents. Please download the application forms from the website of Graduate School of Bioresources, and print them with A4 size. Documents marked with ○ must be submitted by all applicants. Not all applicants will submit documents marked with △, so please read remarks carefully.

Application Forms	Remarks	
Application Form	【Designated Form】Please write the required information on the form designated by the graduate school.	○
Photo Card and Ticket for Exam	【Designated Form】Please attach a recent photograph taken within last three months.	○
CV	【Designated Form】Please write the required information on the designated form. (Only for Foreign Students)	○
Academic Transcript from Undergraduate University or School, etc.	Must be completely sealed by issuer.	○
Certificate of Enrollment	This is necessary for applicants who fall under the categories of special selection for foreign students (10) and are currently in school.	△
Course Guide from Undergraduate University (including List of Courses)	This is necessary for applicants who fall under the categories of special selection for foreign students (10).	△
Reason for Application	【Designated Form】Using the form designated by the graduate school, describe why you want to be admitted, why you want to study, and do research at the Graduate School of Bioresources. Your purpose (plans) should be summarized in approximately 300 words if using English or 1,000 characters if using Japanese.	○
Summary of Research Achievements	***** ***Foreign Students applicants whose qualifications reflect (11) need to submit this.** Write your study topic on line 1 and your name on line 2. Please summarize your research achievements (or graduate thesis) using no more than one A4 page (approximately 900 words if using English or 3,000 characters if using Japanese; drawings, charts, etc., may also be included).	△

Documentation of Research Achievements	Applicants who have authored works, academic papers, technical reports, presentations at academic meetings, patents, etc., should attach documentation indicating those. In the case of collaborative research, applicants should attach materials that clearly state the portion of research for which they can be credited.	△
Application Form for Qualification Certificate	Please submit application form for qualification certificate	○
Stamped Self-addressed Envelope	On the envelope sized 240×332, write your name, address, and postal code, and affix postage worth 440 yen (express letter).	○
Admission Application Fee	Admission application fee: 30,000 yen **(This is not required for a candidate of MEXT scholar, ie. Japanese government scholarship student.)**	○
Admission Application Payment Receipt	【Designated Form】When making a transfer, please read 【Delivery method】 and 【Notes】 written on the payment slip. Affix the wire transfer confirmation form, which must bear the financial institution's seal of receipt, to the application form's "admission application payment receipt" field, and submit it along with the other application materials.	
Health Certificate	【Designated Form】Applicants who reside outside of Japan during the application period (including Japanese nationals) and will be coming to Japan to take the examination should submit a health certificate using the format prescribed by the graduate school. Details are available via the URLs below. URL (Japanese) : http://www.mie-u.ac.jp/exam/health/health2/index.html URL (English) : http://www.mie-u.ac.jp/exam/health/health3.html	△
Other	**Foreign students must submit a copy of their visa and passport.**	○

(2) Methods for applying: Send application forms by postal mail (registered express letter) or submit them in person.

(3) Address for the submission of mailed applications: Student Affairs Section, Graduate School of Bioresources, Mie University, 1577 Kurimamachiya-cho, Tsu City 514-8507, Mie, Japan, TEL +81-59- 231-9631

6. Entrance Fee and Tuition

(1) Entrance Fee 282,000 yen

(2) Tuition 267,900 yen per semester (535,800 yen for the whole year)

(This is not required for a candidate of MEXT scholar, ie. Japanese government scholarship stu dent.)

7. Notes

(1) Incomplete and/or insufficient applications will not be subject to screening.

(2) Any applicants who are found to have made false statements on the application will have their permission to enroll withdrawn, even if a positive admission decision has already been made.

(3) The ticket for exam must be brought along with you on the examination day.

If you arrive late, i.e., after the examination has started, report to the proctor and follow their instructions.

For all exams, you will be considered late if you arrive 30 minutes or more after the exam has started. In such cases, tardiness revokes eligibility for that exam and any subsequent exams.

During exams, you are permitted to have the following items on your desk; ticket for exam, black pencil, black mechanical pencil, eraser, pencil sharpener, a dedicated timekeeping device (i.e., with no other function besides timekeeping), eyeglasses, eyedrops, and tissues (which have been removed from their packaging).

You may not use mobile phones, smartphones, wearable terminals, electronic devices such as calculators, etc.

For the foreign language examination (English or Japanese) that forms part of the special selection for foreign students, applicants may bring one language dictionary; however, electronic dictionaries are not permitted.

Outline of Departments, Courses and Laboratories

1. Department of Sustainable Resource Sciences

In Department of Sustainable Resource Sciences, we aim to educate people who can develop technology and research for the cyclic use of bioresources through efficient, environmentally-friendly methods and design a new society, building a harmonious recycling society.

To that end, we carry out research and education on the sustainable use of bioresources through a study of biological life systems, the environment they live in, and biodiversity. The department is made up of three courses: Agrobiology, which mainly conducts research and education on the use of bioresources such as food and useful materials, Forest Resources and Environmental Science, which mainly conducts research and education on methods for using forest resources and their diverse functions sustainably, and International Regional Resource Science, which conducts research and education on the use of bioresources from economic, management, social, and policy points of view. The details of the education and research provided by each course are as follows.

1-1 Agrobiology Course

Our course is intended to reveal the biological phenomena of plants, animals, and microorganisms at levels of molecules, cells, individuals, and populations. And further, we aim to contribute to improve the productivity of crops and livestock by in a sustainable way and to decrease losses during processes from cultivation to manufacturing. Students gain advanced knowledge and technologies of Agrobiology including plant genetics and breeding, crop science, physiology of horticultural crops, animal and feed production science, phytopathology, insect ecology and etc.

1-2 Forest Resources and Environmental Science Course

Covering 30% of the world's land area, forests are a huge biological community that accounts for 90% of the biomass of terrestrial organisms. For this reason, forests play a major role in maintaining the global environment, and are also important as a renewable resource. In addition to their environmental regulating functions, such as land conservation, water source recharging, and climate mitigation, forests also contribute greatly to our lives, providing us with green spaces that give us spiritual comfort. In our course, we will understand the characteristics of forests, which have multiple functions, through lectures and practical training in ecology, botany, microbiology, soil science, chemistry, physics, information science, etc., as well as practical training in the affiliated forest station. We explore ways to sustainably use their resources and diverse functions while maintaining harmony with the natural environment.

1-3 International Regional Resource Science Course

International Regional Resource Science Course aims at producing leaders capable of finding solutions to challenges faced by rural communities where the majority of populations are engaged in the primary industry such as agriculture, forestry and fishery. Today, issues in rural communities are becoming increasingly complicated due to the rapid change in social structure and ongoing surge of globalization. Understanding and tackling these issues requires an integrated knowledge of natural and social sciences with an international perspective. Therefore, the course implements multidisciplinary education at the interface between natural (crop and livestock) and social (agricultural economics and business administration) sciences. Students enrolled will be provided with the latest information (domestic and international) of each discipline and more importantly several opportunities to integrate knowledge gained from the disciplines.

1-1 Agrobiology Course

Laboratories	Research Outline	Supervisors	E-mail address
Plant Molecular Genetics and Breeding	'Breeding' is based on the genetic modification of organisms for the purpose of selecting improved offspring. This laboratory conducts molecular genetic and genomic studies useful for plant breeding, particularly on the mechanisms of plant reproduction (i.e., pollination/fertilization, self-incompatibility, floral organ formation, etc.). We aim to elucidate molecular functions of genes important for plant breeding by using gene transfer and resultant transgenic plants.	Professor Kakeda Katsuyuki	kakeda@bio.mie-u.ac.jp
Crop Science	Our life depends on bioresources from agriculture, forestry and fisheries for a long time. Especially food crops and industrial crops are very important for quality life. We continue the researches on their growth habits, flowering and fruiting characteristics, yield, quality and utilization. We also try to develop sustainable and stable high yield culture systems and to modify cultural varieties. The target crops are rice plant, soybean, sweet potato and Iseimo (Chinese yam) etc. Our laboratory contribute to promote crop production in Mie area.	Professor Nagasuga Kiyoshi Associate Professor Nagaya Yuichi	nkiyoshi@bio.mie-u.ac.jp nagaya@bio.mie-u.ac.jp
Horticultural Crop Physiology	To improve the quality and cultivation method in fruit trees and vegetables, investigations are in progress from cultural and physiological standpoints. In pomology field, studies on fruit growth and ripening are conducted in evergreenfruits, while stress physiology is analyzing in olericulture field by using tomato, cucumber and so on. Feedback of experimental results is also given to practical cultivation.	Professor Okuda Hitoshi＊1 Professor Nada Kazuyoshi Associate Professor Murakami Satoru	okudat@bio.mie-u.ac.jp nada@bio.mie-u.ac.jp s-murakami@bio.mie-u.ac.jp
Animal Production	Livestock animals such as cattle, pig, and chicken provide meat, milk, and egg which are good protein source for human being. We focus on improving productivity of the livestock animals and reducing impact on environments by controlling endocrine action and gastro-intestinal microorganisms of the animals. Improving productivity will reduce amount of feed consumed and impact on environments.	Professor Matsui Hiroki Associate Professor Ban Tomomi	matsui@bio.mie-u.ac.jp tomomi@bio.mie-u.ac.jp
Grassland and Animal Feed Production	We have been studying the nutrient characteristics of feedstuffs including forages produced in temperate and tropical countries, and food-industrial by-products for ruminants.	Associate Professor Kondo Makoto	makok@bio.mie-u.ac.jp

＊1：Applicants who wish to conduct research under this supervisor should inform Student Affairs Section, Graduate School of Bioresources.

Laboratories	Research Outline	Supervisors	E-mail address
Phytopathology	Accurate diagnosis of plant diseases, identification of causal organisms, and better understanding of epidemiology are essential for controlling plant diseases. The aim of education in this laboratory is to bring up prospective a phytopathologist or mycologist who can make accurate diagnoses of plant diseases and guide farmers in the control of the diseases. Research aims of laboratory staff are taxonomy, diversity, phylogeny and evolution of plant pathogenic fungi using morphology and molecular phylogeny.	Professor Nakashima Chiharu Associate Professor Shirouzu Takashi	chiharu@bio.mie-u.ac.jp shirouzu@bio.mie-u.ac.jp
Insect Ecology	We aim for pest managements in a way with low impact to the environment. Our interest also goes to conservation of insect communities, use of ecosystem services by insects in agriculture. Our current research themes are; 1) pollination biology of insects in agricultural ecosystems, 2) host range evolution of herbivorous invasive insects, 3) life history evolution of herbivores and their parasitoid wasps, 4) inter-specific relationship of two closely related Bactrocera fruit flies.	Professor Tsukada Morio Associate Professor Suzuki Noriyuki	tsukada@bio.mie-u.ac.jp nsuzuki@bio.mie-u.ac.jp

1-2 Forest Resources and Environmental Science Course

Laboratories	Research Outline	Supervisors	E-mail address
Forest Conservation Ecology	Focusing on the forest tree species, that is the fundamental element of forest ecosystems, we explore the mechanisms that maintain ecosystems by monitoring the diversity and structure of natural forest communities and investigating the habitats of individual trees. Furthermore, We reveal the genetic diversity of forest tree species using DNA analysis.	Professor Kisanuki Hiromitsu Associate Professor Torimaru Takeshi Associate Professor Tsuruta Kenji	kis@bio.mie-u.ac.jp torimaru@bio.mie-u.ac.jp tsuruta@bio.mie-u.ac.jp
Forest Mycology	In our laboratory, we are studying the species diversity and functional significance of microorganisms especially ones associated with woody and herbaceous plants, i.e. mycorrhizal fungi, bacteria and nematodes to unveil matter and energy flows and to conserve endangered plants in forest ecosystems. For this purpose, students will have expertise in comprehensive forest microbial ecology through field activity as well as laboratory works of isolation, microscopy and molecular analyses.	Professor Matsuda Yosuke Assistant Professor Kitagami Yudai	m-yosuke@bio.mie-u.ac.jp kitagami@bio.mie-u.ac.jp
Soil Science and Plant Nutrition	In our laboratory, we acquire techniques for chemically analyzing the quantities of various elements contained in soil and plants. Utilizing this technology, we conduct research on the regulation and adaptation of elements acquired by plants from the soil. Additionally, we are working on developing a database of elemental accumulation information for various plant species using plant specimens. Currently, our research focuses on serpentine soil and its adaptive plants, as well as the characteristics of plants that accumulate high concentrations of specific elements such as manganese.	Associate Professor Mizuno Takafumi	tmizuno@bio.mie-u.ac.jp
Forest environmental science	Focusing on the creation of a circular society and symbiotic society, we conduct research on the sustainable utilization of forests and methods for using low environmental impact timber. Conduct research using humanities and social science methods, such as environmental sociology, in collaboration with various forest-related fields. We also conduct research on methodologies for Life Cycle Assessment to evaluate the environmental impacts arising from timber utilization.	Associate Professor Fuchigami Yuki	fuchigami@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Forest Planning for the Environment	We are conducting research on the evaluation of forest functions and the development of forest management plans, with the aim of conserving forest ecosystems and promoting sustainable forest management and use. We are conducting research on forests in Japan and overseas to clarify the responses of trees and forests to climate change and human-induced environmental change, and to develop sustainable forest management planning methods.	Associate Professor Matsuo Naoko	naoko@bio.mie-u.ac.jp
Torrent and Hillside Conservation Technology	Sediment related disaster triggered by various factors, e.g., heavy rainfall, earthquake, or volcanic eruption causes serious damage to the society and human. In our research field, we have conducted researches elucidating mechanisms of sediment transport phenomena which lead to the disaster, for the purpose of disaster prevention and mitigation. We have also investigated forest environment changed by natural or artificial impacts, and tried to restore it properly in terms of disaster prevention and mitigation. We aim that outputs from those researches can be practically used in the societies in Japan and overseas to mitigate damages by sediment related disasters.	Associate Professor Numamoto Shinya	numamoto@bio.mie-u.ac.jp
Forest Engineering	Artificial forests are an important resource, producing high-quality timber and provide the multifaceted functions. However, many artificial forests are located on steep slopes, and are dangerous because logs must be handled in mountains with poor footing. The working environment should be improved. In addition, considering the increase in torrential rains due to climate change in recent years, it is necessary to consider felling systems and the construction of forest roads. In addition, the forestry industry is in a difficult situation due to the drop in timber prices, and improving profitability is also a challenge. Therefore, by through smart forestry using remote sensing and GIS technology, we are conducting research on improving profitability, improving the working environment, and designing forest road networks that take productivity and the natural environment into consideration.	Professor Itaya Akemi Assistant Professor Watanabe Masaru	itaya@bio.mie-u.ac.jp mwatanabe@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Wood Science and Technology	Wood has long been important in our daily lives with its use as a building material, in furniture, and as part of other commodities. It is a permanently utilizable material that is naturally derived and generated daily through photosynthesis. The hollow fibrous structure of wood confers various properties to it. For example, wood is lightweight yet strong, it offers high heat insulation, and it has a significant ability to adjust to humidity. The major research goals of our laboratory are to [1] apply theoretical knowledge to the effective utilization of wood, [2] propose technological applications for wood in residences, and [3] quantify the public benefit of wood utilization in modern society.	Professor Nakai Takahisa Assistant Professor Uchisako Takayuki	jaja@bio.mie-u.ac.jp uchisako@bio.mie-u.ac.jp
Wood Chemistry and Technology	Wood is a sustainable renewable resource and a lignocellulosic material composed of cellulose, hemicellulose, lignin and extractives. Aiming to utilize all components, our laboratory conducts [1] wood component separation technologies [2] conversion and utilization of cellulose and lignin, [3] development of functional bio-fiber or biomass materials. Herbaceous lignocellulosic biomass like bamboo, sugarcane bagasse and sorghum stalk is also subject of our research.	Professor Nonaka Hiroshi Assistant Professor Tokunaga Yuki	nonaka@bio.mie-u.ac.jp tokunaga@bio.mie-u.ac.jp

(Forestry and Forest Products Research Institute (FFPRI))

Laboratories	Research Outline	Supervisors	E-mail address
Wood Science and Technology (FFPRI)	Our laboratory targets production forests that have reached the logging season. Using the latest equipment, we identify the species of woods, drying, cutting and processing woods, which are necessary for effective utilization of woods. We also research the amenity of people who are living in wooden houses based on affective engineering, develop wood building materials in consideration of the use of Japanese hardwoods and aiming to create a society using wood.	Collaborative Associate Professor Sugiyama Masaki*2 Collaborative Associate Professor Toba Keisuke*2	
Nature and Coexistence	This laboratory aims to study and educate on the theory and techniques to develop human activities while maintaining healthy natural environment, and to provide related capacity building. As a member of graduate school, this laboratory addresses problems such as forest degradation and ecosystem fragmentation as well as issues such as conservation of biodiversity and natural environment to reveal the desirable relationship between nature and human society, targeting neighborhood forests, mountains close to rural residences (Satoyama) or forests in the suburbs.	Collaborative Professor Kanzaki Natsumi*2 Collaborative Associate Professor Watakabe Takuma*2	

＊2：Applicants who wish to conduct research under this supervisor should inform Professor Matsuda Yosuke, Laboratory of Forest Mycology. (m-yosuke@bio.mie-u.ac.jp)

1-3 International Regional Resource Science Course

Laboratories	Research Outline	Supervisors	E-mail address
Economic System of Bioresources	The ocean provides various ecological goods and services required by humanity to survive and live comfortably. It not only supplies seafood, but maintains an appropriate environment. For the sustained and efficient use of fishery resources, we are investigating the state of their management, organization and regulations at each stage of production, distribution, and consumption. Our purpose in conducting research and education is to construct sustainable seafood production and distribution systems.	Professor Qingxiu Chang	chang@bio.mie-u.ac.jp
Global Plant Resource Science	The global plant resource science is a field of science that studies plant species grown as resources somewhere in the world from various points of view. Plants for food including animal feed, industrial material and energy source are within the target. The focus of our laboratory is to develop the cultivation technique, particularly the ones to increase production under various environmental conditions and to improve quality of end product.	Professor Sekiya Nobuhito	sekiya@bio.mie-u.ac.jp
Global Resource Utilization Science	Recent over-exploitation in agriculture cause grassland use and livestock production system problem in the world. Our research topics are understanding plant-animal-soil relationships on grazing ecosystems, and feed, nutrition, healthy and behavioral science of ruminants to establish sustainable grassland use and livestock production system.	Associate Professor Yoshihara Yu	yoshihara@bio.mie-u.ac.jp

2. Department of Environmental Science and Technology

In Department of Environmental Science and Technology, we aim for the construction of a sustainable biological production system in which human activities and biological systems are in harmony while preserving and restoring, and understanding, the environment of the global biosphere which is made up of all the diverse ecologies. To that end, we carry out research and education, rooted in basic science, in fields such as meteorology, environmental science, and ecology, looking at global ecological systems with its complex interactions among the land, sea, and sky, and applied technology, in a field of environmental and agricultural engineering to achieve a better and more sustainable future for all. This department is made up of three courses: Sustainable Earth and Environmental Sciences, which looks at the fields of geoscience; Environment Oriented Information and System Engineering, which uses instrumentation, control and systems engineering of environmental information, with a core of information processing technology based on knowledge of bioecology, as its methods; and Irrigation, Drainage and Reclamation Engineering, which is designed for the protection of rural villages and farmland where humans are directly connected with the workings of nature as well as their sustainable use as sound, healthy places for material circulation. The details of the education and research provided by each course are as follows.

2-1 Geosciences Course

Changes in the earth's environment such as climate changes and abnormal weather work in concert with ecological environmental systems and earth systems that are made up of the atmosphere, the oceans, plants, the hydrosphere, the ecosphere, and the activities of humans and other animals. We conduct research on the basic structures, change processes, symbiotic relationships, and interactions that make up these systems, such as the evolution of the earth, climate, conservation of the global environment, the physiological ecology and ecological harmonization of flora and fauna, and human activities, all with reference to observation, measurement, experimentation, investigation, remote sensing, and numerical analysis. We provide education and research to train people who can use the new scientific knowledge gained from this research and the thinking and practical skills learned through research to contribute to the creation of the next-generation culture and construct a sustainable society.

2-2 Environment Oriented Information and System Engineering Course

In order to allow humans to develop sustainably while coexisting with other organisms and preserving the environment, our course uses systems engineering as a method for education and research related to complex systems, the control of production systems, and the measurement of environmental information with a core of information processing technology, building on knowledge of bioecology. In other words, we offer research and education on symbiotic technology and plants that are related to environmental improvement. In addition, we carry out research and education on applied technology such as the production and processing of bioresources using low environmental load technologies through precise management.

2-3 Irrigation, Drainage and Rural Engineering Course

In this course, we provide education and research with the goal of creating a rich rural environment as place for sound, healthy material circulation, preserving the rural regions where agriculture is practiced. Specifically, we carry out research and education on the appropriate and sustainable use of water, soil, and space in rural areas where the workings of nature and humans directly interact, planning and conservation for rural environments, development and management of rural areas and facilities, the effective use of regional resources, the theories and technologies required for preventing or mitigating natural disasters and recovering from them, investigation and analysis of overland and subsurface flows, and explanations and forecasts for the flow of water, chemicals, heat, and gas in rural areas.

2-1 Geosciences Course

Laboratories	Research Outline	Supervisors	E-mail address
Atmosphere and Climate Dynamics	The primary aim of our education and research is to analyze and understand, at both the global and the regional scales, the mechanism and the dynamics of the changes in the global climate and ecosystem, as well as the mutual interrelationships among them. GIS, field observation and satellite data are intensively utilized. The fingerprints of these changes are observed through such phenomena as extreme weathers (El Niño, storms), drought, air and water pollution related eco-climatic problems (global warming, ozone depletion, acid rains), and changes in the land covers (tropical rainforests destruction, desertification). We especially emphasize on the role and influence of the human as part of the global ecosystem. This makes it possible to obtain a deep understanding of his actions, and to devise and implement ways and means for sustainable solution to the problems.	Professor Tachibana Yoshihiro *1 Assistant Professor Ogawa Fumiaki	tachi@bio.mie-u.ac.jp fumiaki.ogawa@bio.mie-u.ac.jp
Meteorological Analysis and Prediction	Weather and climate have substantial influence on our society and economy. This is why various types of weather forecasts are provided, ranging from several-hour forecast to seasonal prediction. Those forecasts, however, have not yet been fully utilized by society. Everyday, a lot of meteorological data including observation and numerical simulation output are produced for the sake of providing weather forecasts. By analyzing those data, we are aimed at improving weather prediction skill through deeper understanding of meteorological phenomena, and also at finding a way to make weather forecast more useful for society.	Associate Professor Nishii Kazuaki	nishii@bio.mie-u.ac.jp

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Laboratories	Research Outline	Supervisors	E-mail address
Ocean Climate Laboratory	According to the increase of greenhouse gas in the atmosphere such as carbon dioxide, it is suspected that global warming would be proceed and abnormal weather would be frequently occurred. Abnormal ocean conditions such as decease of the Arctic sea ice or the temperature rise in the deep seas, would be occurred in the global ocean, too. In our ocean climate laboratory, concerned researches on the global ocean climate variability and global ocean circulation change are carried out through the global analysis of sea level change and water temperature. For the researches, in-situ oceanographic observation and analysis are also carried out by our training ship "Seisui-Maru" of Mie University. Further numerical model experiment on the ocean circulation, and re-analysis of the archived oceanographic data in the JODC are also tried. Let's start to study the global ocean climate change with us for the sustainable ocean and earth.	Associate Professor Yamada Fukuji	fyamada@bio.mie-u.ac.jp
Ocean and Climate Change Laboratory	Ocean covers the approximately 70% of Earth’s surface and plays a vital role in changing weather and climate by providing a huge amount of heat and water vapor. It is also important source of food supply for an ongoing population explosion. Based on physical oceanography and dynamic meteorology, this laboratory covers studies on roles of ocean in Earth’s climate and ecosystems, with synergy of remote-sensing techniques, numerical simulations, in-situ observations.	Associate Professor Manda Atsuyoshi	am@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Sustainable Earth System Laboratory	Research subjects of this laboratory are (a) the past,(b) present and (c) the future of the earth. (a) Knowledge of the past earth environment is needed to be understanding nature of material and energy circulation in our planet For understanding of the past earth, we investigate marine and land sediment and sedimentary rocks by the several methods: geology, environmental geology, sedimentology, geochemistry, and geochronology. (b) For understanding for the present Earth, we investigate “Natural Environmental Literacy” including experience nature, acquire knowledge and skills for safe outdoor activities, and convey the importance of nature. We investigate biodiversity, ecosystem conservation, and carbon sink in the nature. (c) For predicting and planning of our future of the earth, it is necessary to investigated sustainable development not only for natural environment but also for human society. We investigate future model of self-sustainable social system especially based on renewable energy such as, solar,wind, water, and biomass.	Professor Sakamoto Tatsuhiko	tats@bio.mie-u.ac.jp
Water Environment and Natural Disasters	Water often presents a threat to humankind, but is often regarded as a resource.From the former viewpoint,we study and educate students about natural disaster science, especially the science of water-related disasters. From the latter viewpoint, we study and educate students about water resources and water environment engineering. For each hydrological process, we specifically examine precipitation and flooding, especially statistic and stochastic analyses of precipitation and flood. Research areas we treat are hydraulic engineering, river engineering, hydrology, meteorology, and seismology.	Professor Kuzuha Yasuhisa*1	kuzuha@bio.mie-u.ac.jp

*1：Applicants who wish to conduct research under this supervisor should inform Student Affairs Section, Graduate School of Bioresources.

2-2 Environment Oriented Information and System Engineering Course

Laboratories	Research Outline	Supervisors	E-mail address
Environmental Information and Technology	The purpose of our research is to contribute to the achievement of Japanese smart agriculture, and the increased biomass utilization by using engineering approach. Especially, we are actively involved in education and research related to the traveling performance of agri-vehicle, the agricultural information system and the distribution system. We also focus on education and research associated with torrefaction and biodiesel.	Professor Fukushima Takashi Associate Professor Takisawa Kenji	t-fuku@bio.mie-u.ac.jp takisawa-k@bio.mie-u.ac.jp
Productive Environment System	The performance of machinery and equi pment systems related to biological prod uction, industrial production, the environ ment, etc. are analyzed using information engineering and system engineering. Th e condition monitoring and diagnostic m ethods of machinery systems for environ ment-friendly, safe and secure, new diag nostic technologies for biological materia ls and foods based on optical characteris tics, and intelligent robot system are edu cated and studied by introducing advance d technology.	Associate Professor Suzuki Tetsuhito	t-suzuki@bio.mie-u.ac.jp
Energy Utilization Engineering	Our research aims to utilize renewable biological resources and develop automated, low-environmental-impact food production systems for enhanced efficiency. We focus on the development of biodegradable biomaterials derived from plant biomass. The establishment of fertilizer production technologies extracting from agricultural waste to support sustainable agricultural model. The model address urbanization and climate change and the optimization of food production systems for automation and energy efficiency. Through these research areas, we engage in both theoretical and applied studies to advance sustainable resource utilization and next-generation food production technologies	Professor Xiu Lun Wang*1 Assistant Professor Wu Tingting	wang@bio.mie-u.ac.jp wu@bio.mie-u.ac.jp
Agricultural and Food Systems	The focus of our education and research field is on food system defined as the aggregate of food-related processes involving food producing, harvesting, processing, packaging, transporting, marketing, consuming, disposing of food. Education and basic and applied research for sustainable food system, smart food system, agricultural robot, and information technology for monitoring the quality of agricultural and marine products and food are carried out in this field.	Professor Morio Yoshinari Assistant Professor Naito Hirotaka	morio@bio.mie-u.ac.jp naito@bio.mie-u.ac.jp

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2-3 Irrigation, Drainage and Rural Engineering Course

Laboratories	Research Outline	Supervisors	E-mail address
Rural Plannning	Today, many of the sensitive young people who live in an urban area take a lively interest in rural area. They move to the rural area for their livelihood and a good life. On the other hand, some human activities in rural area have been decreasing. It is deeply concerned about that it brings to decline multifunction in rural area, which are mitigation of soil erosion, groundwater storage and so on. In this laboratory, we are studying about policies for sustainable live and livelihood in the rural area, which are sustainable agriculture, food keeping for living and building a self-production system of energy. We research and educate a skill of social planning and technology in sight of water, farmland and energy in rural area.	Associate Professor Morimoto Hidetsugu	morimoto@bio.mie-u.ac.jp
Soil Resources Engineering	Soil resources (ground) are useful in many ways and can sometimes cause significant disasters. To protect communities and people from these geological disasters, we are conducting educational research on the physical and mechanical properties of soil that differ under various conditions as well as the various properties exhibited by interactions with structures, and ensure the safety and security of soil resources. Specifically, the main themes include elucidation of the mechanism of ground shear failure, reinforced earthwork methods, SDGs-type ground improvement, development and application of composite materials using recycled materials, and sustainable ground improvement, including overseas research.	Professor Hossain Zakaria Assistant Professor Tanaka Yoshikazu	zakaria@bio.mie-u.ac.jp ytanaka@bio.mie-u.ac.jp
Water Resources Engineering	We are aiming to develop the conservation and recycling technology of sustainable water resources that can answer the continuing needs of the society on the basis of a quantitative grasp of the hydrological impacts including evapotranspiration and rainfall during the hydrologic process of the natural world studied mainly from the agricultural sector. To be specific, through the proposal related to the design of water storage facilities, water transmission and deliverage facilities with attention paid to water quality problems such as eutrophication, etc., the proposals about environment improvement and research while paying attention to the ecosystem of the water environment, and proposals for measurement technology and facility design for contributing to watershed flood control in rural areas, the educational research also containing the evaluation method itself will be conducted based on the results above.	Associate Professor Kondo Masaaki Associate Professor Ito Ryoei	kondo-m@bio.mie-u.ac.jp itou-r@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Irrigation Facilities Engineering	Agricultural facilities such as dams, headworks and canals are facing various problems due to intensifying natural disasters and aging of the facilities. Advanced maintenance methods for agricultural facilities are being sought with the rapid advances in information technology. To solve these challenges, we promote practical education and research into the safety and maintenance inspection methods and appropriate new reconstruction methods in the construction and maintenance of agricultural facilities, using techniques such as materials testing, model testing, surveys and numerical analysis.	Professor Okajima Kenji Assistant Professor Nagaoka Seiya	okajima@bio.mie-u.ac.jp nagaoka@bio.mie-u.ac.jp
Vadose Zone Hydrology	Soils are among the most complex systems found in nature where physical, chemical, and biological processes taking place simultaneously. Water and energy balance through the soils, especially in cryosphere, strongly affects not only local agriculture but also global climatic changes. Vadose zone hydrology and soil physics is concerned with the application of physical principles to characterization of soil properties and to understanding of processes occurring in this life-supporting thin crust of the Earth surface.	Professor Watanabe Kunio	kunio@bio.mie-u.ac.jp
Soil Physics and Hydrology	The vadose zone, also termed the unsaturated zone, is a soil layer from the surface to the position of the groundwater, generally corresponding to the plant root zone. Unsaturated water flow, solute, heat, and gas transport with the carbon and nitrogen cycling in the vadose zone are experimentally and numerically studied. Field and laboratory experiments are conducted to intensively monitor water flow and solute transport. Numerical simulation models are developed to predict water, heat, and chemical transport with plant root uptake in a soil including nitrogen components in a solution phase and carbon dioxide in a gas phase as a result of degradation of organic matters. Furthermore, the chemical transport model is applied to predict cesium transport in agricultural fields of Fukushima area.	Professor Toride Nobuo＊1 Associate Professor Sakai Masaru	ntoride@bio.mie-u.ac.jp sakai-m@bio.mie-u.ac.jp

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3. Department of Life Sciences

Department of Life Sciences aims to build the basic scientific theories related to the life sciences overall as well as a field of study related to the development, conservation, and management of marine bioresources, and to instruct the students through the practical education. Therefore, in this department, we carry out research and education in order to allow individual students to learn the research skills required for research in the life sciences, as well as to understand basic theory related to the life phenomena of bioresources at the ecosystem, community, population, individual, organ, cell, and molecular levels. The department is made up of three courses: Biochemistry and Biotechnology, which seeks to clarify the structure and functions of the systems and molecules of life phenomena through research strategies related to bioscience and biotechnology, and apply them to the development of functional molecules and foods, or to environmental technologies; Marine Life Science and Molecular Chemistry, which aims to explain the marine biological functions of marine life on a chemical level and contribute to the effective use of marine bioresources, and Marine Biology, which seeks to understand life in the hydrosphere, including fresh water areas, and the workings of these life forms on a range of scales, from molecular to ecological. The details of the education and research provided by each course are as follows.

3-1 Biochemistry and Biotechnology Course

Our goal is the effective use of bioresources over a wide area that includes foods, health, drugs, lifestyle, and the environment. Using the strategy of bioscience and biotechnology, we look at the diverse systems of life phenomena, whether animal, plant, or microorganism, as well as their molecular structures and functions of the materials that these organisms produce. Our aim is to establish theories and skills for applying these results to the development of new functional molecules and foods, and environmental technologies. To that end, we carry out specialist research and education from the perspectives of chemistry, biochemistry, molecular biology, and bioengineering, with a focus on research into structures and functions of new functional materials, the genetic expression mechanisms of animals and microorganisms, bio-information sensing and processing technologies, and the development of technologies for using unutilized bioresources.

3-2 Marine Life Science and Molecular Chemistry Course

Along with providing explanations for the marine biological functions on a chemical level, we also aim to effectively utilize marine bioresources such as seafood, algae, marine microorganisms, etc., and to integrate biological information through analysis and isolation of their components. In addition, we use these as materials to create functional food resources, cosmetics, etc. through biochemical and genetic engineering techniques. In our course, we provide research and education on biochemistry, molecular biology, and the analytical techniques. Furthermore, we carry out research and education so that students can learn and master abilities to handle these techniques into practice.

3-3 Marine Biology Course

In our course, we conduct researche on a wide range of marine life, from cellular and individual levels to biotic communities and ecosystems. Our research fields cover all aquatic environments, including fresh water but focus on the ocean. The subjects of our research include plankton, algae, crustaceans, shellfish, finfish, and marine mammals. We conduct research and education on understanding the biological activities of these life forms at genetic, cellular, individual, and community levels, as well as on methods for conserving ecosystems and preserving biodiversity, and on the sustainable use of marine life. We also aim to enrich human life through the appropriate management of marine life as resources, effective aquaculture methods, and ICTs for fisheries.

3-1 Biochemistry and Biotechnology Course

Laboratories	Research Outline	Supervisors	E-mail address
Molecular and Cellular Biology	Our laboratory focuses on understanding the roles of chromatin modifications in regulating key cellular processes such as DNA replication, transcription, DNA repair, genome stability, and cell differentiation. We use cutting-edge techniques in biochemistry, molecular biology, and cell biology to explore these molecular mechanisms, with a particular emphasis on animal cells. Our research aims to advance fundamental knowledge and apply these insights across various fields of bioscience and related areas. In addition, we are exploring the potential roles of vitamins and bioactive compounds derived from food to unlock new applications in life sciences.	Professor Takebayashi Shin−ichiro Assistant Professor Poonperm Rawin	stake@bio.mie-u.ac.jp rawin.poonperm@bio.mie-u.ac.jp
Molecular Bioinformatics	Current research projects of this laboratory are as follows: (1) genomic-scale analysis of bacterial gene and protein expression, (2) analysis of protein structure and function, (3) lignocellulosic biorefinery using *Clostridium* species, and (4) application of microbial calorimetry to the food science and the soil science.	Professor Suehara Ken-ichiro Associate Professor Miyake Hideo	suehara@bio.mie-u.ac.jp miyake@bio.mie-u.ac.jp
Biofunctional Chemistry	Molecular interaction and/or recognition play an important role generally in the crucial situation for biological process. Our laboratory is focusing such molecular recognition from a viewpoint of organic chemistry. The host-cell recognition of bacteriophage and epidemic penetration of medical drugs are investigated for development of new drugs and functional material. In those studies, phages, bacterial cell, and animal skin are studied using methods of decompositional manner dearing organic molecules that function there. Application researches for developing a new method for organic synthesis of materials for drugs and exploring substances account for palatability of beverage are also our interest.	Professor Inagaki Minoru	inagaki@bio.mie-u.ac.jp
Medicinal Chemistry	This laboratory is focusing on 3D structure of drug molecule to develop more effective drugs with few side-effects. Molecular modeling, organic synthesis, biological evaluation, and 3D structural analysis of bioactive peptides are performed to optimize its 3D structure. These experiences help students to learn organic, biological, analytical, and computational chemistries, which are necessary for drug development.	Associate professor Masuda Yuichi	masuda@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Bioorganic Chemistry	Our focus is to maintaining the life activity of human being or the other organism.We intend to clarify the chemical structure of endogenous or exogenous bioorganic materials and to make clear the mechanism of expression and regulation of various functions using its bioorganic materials. The results are applied to control the activity of human being or the other organism.	Associate Professor Katsuzaki Hirotaka Associate Professor Okazaki Yozo	katsuzak@bio.mie-u.ac.jp yozo.okazaki@bio.mie-u.ac.jp
Bio-regulatory Chemistry	Bio-phenomenon is done by significant dynamic changes in the chemical reactions and molecular interactions. In our education and research division, we organic-chemically and bio-chemically research the regulation mechanism of molecule bio-systems as a basic study, and subsequently develop some novel diagnosis materials and medicines for life innovation and human health care as an applied study.	Professor Teranishi Katsunori＊1	teranisi@bio.mie-u.ac.jp
Bioinformation and Food Engineering	In order to take full advantage of bioinformation such as structure,shape, color, taste and functions of foods and agricultural products on food production, processing and logistics, we perform the education and researches on biochemical and food engineering by analyzing bioinformation at molecular, cellular and individual levels. We conduct researches and professional education relating to bioprocesses in the fields of food production and agricultural sector, and apply multiband optical sensing methods to getting quantitative and kinetic grasps of various kinds of bioinformation which appears due to the metabolism.	Professor Hashimoto Atsushi	hasimoto@bio.mie-u.ac.jp
Food Chemistry	The laboratory of Food Chemistry studies structure, properties, and analytical methods of food compounds and food-related enzymes. Also, we work on the development of technologies to produce novel or valuable food compounds using enzymes or microorganisms, and the effective use of regional resources. The main subject of the laboratory is carbohydrates such as polysaccharides and oligosaccharides and their related enzymes.	Professor Isono Naoto Associate Professor Mishima Takashi	isono@bio.mie-u.ac.jp mishima@bio.mie-u.ac.jp
Applied Mcrobial Genetics	Genetic engineering is a technology that has the potential to produce more useful microorganisms for bio-industry. One of the targets of our research is molecular breeding of microorganisms that are able to degrade complex plant cell wall fibers and produce biofuels. Degradation of plant cell wall requires many cellulolytic enzymes. Therefore, engineering of metabolic pathway and transcriptional mechanism is required for breeding microorganisms that can convert biomass to bioenergy efficiently. We are focusing on molecular genetics of anaerobic bacteria and filamentous fungi.	Professor Kimura Tetsuya Associate Professor Kunitake Emi	t-kimura@bio.mie-u.ac.jp kunitake@bio.mie-u.ac.jp

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Laboratories	Research Outline	Supervisors	E-mail address
Nutritional Chemistry	We study the response of the living body for food at levels of individual, tissue, cell, molecule and gene. Especially, we purify some functional components from unutilized resources obtained from the animals and plants and the microorganisms and analyze their structures and clarify the action mechanisms of those components using the techniques of animal experiment and the cell culture to make use of them for health promotion and the prevention and the improvement of the lifestyle-related disease. Our main research projects are study on functionality of the soybean fermented food, effect of food components for animal models for eye diseases, modulation of bone metabolism by food components, the study about the anti-allergy components from food using mouse models of asthma, and the study about the functions of the nucleolus protein.	Associate Professor Nishio Masahiro Assistant Professor Kuriya Kenji	nishio@bio.mie-u.ac.jp kuriya@bio.mie-u.ac.jp
Fermentation Biology	Alcohol beverages, traditional foods, such as natto and tsukemono, and yogurts are produced with microbial fermentation. Our laboratory is interested in microorganisms involved in fermentations for food productions and chemicals. We educate on microbiology, microbial genetics, physiology, molecular biology and recombinant DNA technology. We strive to give the student the opportunity to develop the skills and fundamental knowledge to become an independent investigator in academia or industry.	Associate Professor Umekawa Midori	midoriumekawa@bio.mie-u.ac.jp

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Laboratories	Research Outline	Supervisors	E-mail address
Food Function	In addition to nutritional supply (primary function) and palatability (secondary function), foods also have a physiological function (tertiary function) that maintains and promotes health. Currently, research on foods and ingredients having functions progresses, forming a functional food market. In this research field, we focus on tertiary functions of foods, discuss the components responsible for it, discuss methods to evaluate function, production / processing, functional food market and others. We also discuss the significance of specific functional materials such as polyphenols, functional carbohydrates, amino acids, antioxidant substances in living bodies.	Collaborative Professor Ozeki Makoto＊1 Collaborative Associate Professor Kobayashi Junya＊1 Collaborative Associate Professor Abe Aya＊1	

＊1 : Applicants who wish to conduct research under this supervisor should inform Student Affairs Section, Graduate School of Bioresources.

3-2 Marine Life Science and Molecular Chemistry Course

Laboratories	Research Outline	Supervisors	E-mail address
Marine Biochemistry	In the special environment of the sea, marine organisms involve novel constituents and engage in their interesting biological phenomena. Especially attention to marine macroalgae and mollusks, we survey the algal/mollusk compounds which contribute to the maintenance of human health by investigating their functional effectiveness and intracellular dynamics. In addition, we intend to elucidate the molecular mechanisms for morphological and developmental characteristics, response and adaptation to fluctuating environmental conditions, and phenotypic expression of industrially useful varieties in marine macroalgae and mollusks using their genomic information. Our purposes on education and research result in obtaining the wide knowledge and experimental technique to students, and in contributing to highly effective utilization, sustainable and stable production, and conservation of biodiversity of marine bioresources.	Professor Kakinuma Makoto Assistant Professor Igarashi Yoji	kakinuma@bio.mie-u.ac.jp igarashi@bio.mie-u.ac.jp
Molecular Chemistry and Aquatic Materials	A variety of organisms have been inhabiting the hydrosphere. Our laboratory investigates functional ingredients in aquatic organisms that contribute to beauty (whitening, photo-aging, etc.) and the prevention and/or improvement of lifestyle related diseases (cancer, osteoporosis, allergy, etc.), and elucidate its mechanism based on scientific evidence. In addition, in order to expedite the development of functional cosmetics and foods, we have been engaging in the development of new evaluation system for screening of functional ingredients by using noncoding RNA and extracellular vesicles secreted from cells. In this way, our laboratory educate you from the view point of cell biology, experimental animal science, and nutrition for the purpose of material development that contributed to the improvement of ‘‘Quality of Life’’.	Associate Professor Itoh Tomohiro	titoh@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Biophysical Science	Aquatic organisms are adapted to an extremely wide range of environments. Physicochemical properties of the biomolecules that work in the tissues and organs of aquatic organisms are significantly different from those of terrestrial animals and plants. We are mainly targeting the muscles of aquatic animals, and are studying to clarify their molecular mechanism of muscle contraction from the viewpoint of comparative physiology and comparative biochemistry. The results obtained are useful not only for accumulating biological knowledge, but also for maintaining the quality of seafood and developing processing technology. In this research field, we will conduct education and research on food science based on the characteristics of aquatic organisms.	Professor Ooi Atsushi*1	ooi@bio.mie-u.ac.jp
Marine Biotechnology	Figures and functions of aquatic organisms extremely differs from those of land-dwelling creatures. Aquatic organisms have acclimated themselves to the aquatic environment and their genes have produced various proteins that give abilities to live in the aquatic environment. Our laboratory is studying on functions of muscle proteins of aquatic creatures such as sharks that have urea in muscle and bivalves of which muscle can maintain the tension for a long period without energy consumption.	Professor Funabara Daisuke Assistant Professor Mizutani Yukino	funabara@bio.mie-u.ac.jp mizutani@bio.mie-u.ac.jp
Marine Microbiology	Microorganisms such as bacteria, true fungi, and unicellular algae, are one of useful marine resources. We have so far searched and isolated unique and useful microorganisms in marine environments. We have investigated biochemical, physiological, and ecological properties of these microorganisms to produce chemicals and bioenergy.	Professor Tanaka Reiji	tanakar@bio.mie-u.ac.jp
Quality in Marine Products（Aquatic Biotechnology）*3	Our laboratory aims to improve the quality and value of marine products. We conduct bioengineering based research on the exploration of novel biocatalysts and microorganisms from aquatic environments, structural and functional analysis of enzymes, and bioproduction of high value-added chemicals. In addition, it is imperative to control harmful microorganisms such as food-poisoning bacteria in food-manufacturing factories. We have been investigating the optimization of cleaning and disinfecting operations of food-processing equipment from interfacial aspects.	Professor Fukuzaki Satoshi Associate Professor Okazaki Fumiyoshi	satoshi_fukuzaki@bio.mie-u.ac.jp okazaki@bio.mie-u.ac.jp

＊1：Applicants who wish to conduct research under this supervisor should inform Academic Affairs Office, Graduate School of Bioresources.

＊3：The laboratory name will be changed from April 1, 2026.

Laboratories	Research Outline	Supervisors	E-mail address
Marine Food Chemistry ＊1	In the laboratory of marine food chemistry, it is engaged in the following research topics: 1. Study on search for novel physiological active substances from marine resources. 2. Studies on production of rare sugars from seaweed polysaccharides and evaluation of their physiological functions. 3. Studies on structural analysis and physiological functions of seaweed polyphenols (phlorotannins). 4. Study on development of method for quantitative analysis of marine physiological active substance using mass spectrometer (e.g., LC-MS, GC-MS) 5. Study on biorefinery using marine resources.	Professor Shibata Toshiyuki	shibata@bio.mie-u.ac.jp

＊1：Applicants who wish to conduct research under this supervisor should inform Academic Affairs Office, Graduate School of Bioresources.

3-3 Marine Biology Course

Laboratories	Research Outline	Supervisors	E-mail address
Biological Oceanography	Plankton is an important organism supporting the aquatic ecosystems as a primary producer at the lower tropic level. In our laboratory, we mainly research about the relationship between population dynamics of phytoplankton and environmental conditions from the viewpoints of biological oceanography. In addition, we conduct experiments and field studies to elucidate physiology and ecology of harmful and toxic marine microalgae that kills fishes and/or causes intoxification of bivalves (scallops, clams, etc.). We also study the taxonomy and phylogeny of these harmful and toxic marine microalgae.	Professor Ishikawa Akira Assistant Professor Lum Wai Mun	ishikawa@bio.mie-u.ac.jp lumwaimun@bio.mie-u.ac.jp
Fish Physiology	We elucidate visual function in fish and cephalopods basing on retinal histology and molecular analysis of opsin genes, and understand how they have adapted to the light environment of various depths and water properties during their evolutionary diversity. In addition, marine environmental surveys will be conducted using our R/V SEISUI-MARU. We nurture the results and information from these experiments and field investigations as theoretical and practical knowledge to understand the behavioral ecology of fish and cephalopods. It will enable applying the technology to conservation of fishing ground environments and maintenance of ecosystems, development of fishing gears, and aquaculture technologies. We aim to address issues related to fisheries from multiple perspectives through education and research involving the laboratory and the field.	Associate Professor Miyazaki Taeko	taeko@bio.mie-u.ac.jp
Phycology	We study the ecology and physiology of seaweeds and seagrasses, which are very important primary producer in the coastal ecosystem. Our laboratory focuses on the roles and the functions of seaweed and seagrass communities in the coastal ecosystems, the restoration of seaweed beds from barren grounds (ground devoid of seaweed beds) and the development of aquaculture techniques of seaweeds. We conduct field surveys and laboratory culture experiments to elucidate the factors affecting the seaweeds growth and reproduction, such as water temperature, light intensity, wavelength of light, nutrients, and density of herbivores. We conduct research and education on the conservation of coastal environment with reference to seaweed and seagrass communities.	Professor Kurashima Akira	kurasima@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Shallow Sea Aquaculture	Shallow water zones in the sea are main fields for bioproduction processes in marine ecosystems utilizing solar energy. Our laboratory's aim is to elucidate the physiology, ecology, and growth mechanisms of a wide variety of aquatic organisms inhabiting shallow water areas, and to effectively utilize shallow water areas as a place for food production using their high productivity. To solve various problems that hinder their sustainable development, our laboratory works on various topics related to the following keywords: fishery, aquaculture, aquatic bioresources, regulatory biology, larviculture feeds, and so on.	Professor Matsuda Hirokazu Prosessor Tsutsui Naoaki Assistant Professor Yamamoto Kosuke	hmatsuda@bio.mie-u.ac.jp tsu2@bio.mie-u.ac.jp y-kosuke@bio.mie-u.ac.jp
Fish Diseases	This field conducts educational and research activities on solutions to disease problems in cultured and wild fishes using advanced technologies. We aim at investigating the causes of emerging diseases, defining the causative agents, and establishing diagnostic and preventive measures followed by formulating control strategies for the disease prevention, as well as understanding the agents and diseases. Our activities can be used to improve technology for stable supply of safe and quality fishery products.	Professor Isshiki Tadashi Associate Professor Kitamura Shin-Ichi	isshiki@bio.mie-u.ac.jp kitamura@bio.mie-u.ac.jp
Fish Stock Enhancement	The laboratory addresses the fish fauna or life history such as feeding habits, growth, and reproduction of fishes especially focused on freshwater fishes and accumulate basic biological information of them. Based on the information, the laboratory educates and research to contribute to the fish-stock enhancement and conservation of biodiversity by analyzing the suitable habitat of native species and the factors of their decline, evaluating the impact of alien species and improving methods for their control or management.	Professor Yodo Taiga	tyodo@bio.mie-u.ac.jp
Marine Ecology	Seacoasts are important place supporting and raising a great variety of life. Our laboratory focuses on the ecology of organisms in seacoasts (tidal flat, sandy shore, salt marsh, estuarine and seagrass bed). We are interested in the life history and population dynamics of endangered and introduced species, and the development of new approaches to conservation.	Professor Kimura Taeko	k-taeko@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Biology of Aquatic bioresources	Aiming for the sustainable use of fishery resources in coastal waters, we work on education and research about the ecology of commercially important aquatic species and various organisms surrounding them. Currently, the main research themes include: 1) establishment of evaluation method of food environment for bivalves, 2) feeding strategies of small crustaceans inhabiting seaweed beds, 3) Anti-predator tactics of diatoms, and 4) feeding ecology of chitons and gastropods.	Assistant Professor Houki Shouji	houki@bio.mie-u.ac.jp
Molecular Ecology of Aquatic Animals	Laboratory of Molecular Ecology of Aquatic Animals performs researches for the elucidation of mysteries in biodiversities in aquatic animals (ecology, morphology and behavior) and their histories (evolution and adaptation), with the usage of DNA information in vertebrates (mainly fin fishes) and molluscs. Its academic fields are as follows. 1)Analysis of evolution and adaptation in aquatic animals 2)Analysis of the mechanism in the invasion success of exotic species 3)Gathering information for the conservation of endangered species 4)Development of breeding techniques of aquatic animals, using the molecular information	Professor Kawamura Kouichi	kawa-k@bio.mie-u.ac.jp
Fish Population Dynamics	We teach and study population dynamics and their application to the management and conservation of aquatic animal populations. The subjects of our study include (1) assessment and management of fish populations and (2) mathematical modeling of the population dynamics of aquatic bioresources.	Associate Professor Kanaiwa Minoru	kanaiwa@bio.mie-u.ac.jp
Fisheries Ethology	Based on environmental observations, our aim is to clarify relationships between behavioral ecology and environmental variables. More specifically, we develop devices and methodologies to measure behaviors of fish and crustaceans. We also examine ways of reproducing realistic habitats in the laboratory to enable analysis of periodicity of behavior, performance evaluation of sensory organs, and by such evaluations assess the adaptability of organisms to environmental change. We educate and research efficient and sustainable fishing methods in order to optimize usage of aquatic resources.	Associate Professor Morikawa Yoshitaka	morikawa@bio.mie-u.ac.jp

Laboratories	Research Outline	Supervisors	E-mail address
Applied Marine Informatics	Our laboratory is dedicated to the education and research of utilizing Information and Communication Technologies (ICTs) and Internet of Marine Things (IoMT) in conjunction with big data analytics to promote sustainable fishing practices and environmental conservation in coastal areas. Our research centers on themes of digital transformation (DX) within the fisheries and oceanic environments, including the implementation of ICTs and IoMT for monitoring marine resources and utilizing measurement technologies to gauge environmental factors such as water quality, waves, currents, and bathymetries - all of which are essential components of the coastal fisheries.	Associate Professor Okabe Takumi	okabe@bio.mie-u.ac.jp
Cetacean Research	Cetaceans (whales, dolphins and porpoises) are among the top predators of the marine environment. Our laboratory conducts fundamental research and provides education on the physiology, ecology and ethology of cetaceans, both in the wild and in captivity. We focus our research efforts on conservation and minimizing anthropogenic impacts on wild cetaceans, as well as working alongside aquariums to increase breeding success among captive cetaceans.	Professor Morisaka Tadamichi Associate Professor Funasaka Noriko Assistant Professor Yagi Genfu	chaka@bio.mie-u.ac.jp funasaka@bio.mie-u.ac.jp yagi@bio.mie-u.ac.jp

(Fisheries Technology Institute, Japan Fisheries Research and Education Agency)

Laboratories	Research Outline	Supervisors	E-mail address
Developmental and Metabolism Biology	To establish an efficient and sustainable aquaculture system, we elucidate mechanisms of development, reproduction and metabolism of aquatic organisms using molecular techniques. We also develop new techniques for reproduction and breeding using genomic information and cell engineering methods. Improving fish feed to product healthy fish is also our goal.	Collaborative Professor Fujiwara Atushi Collaborative Associate Professor Murashita Koji Collaborative Associate Professor Yamaguchi Toshiya	fujiwara_atushi09@fra.go.jp murashita_koji97@fra.go.jp tyamaguchi@affrc.go.jp