GRADUATE SCHOOL OF ENGINEERING AND SCIENCE, UNIVERSITY OF THE RYUKYUS
OKINAWA INTERNATIONAL MARINE SCIENCE PROGRAM
(NON-SCHOLARSHIP)

(MASTER'S PROGRAM)

ABOUT THE PROGRAM

The Okinawa International Marine Science Program has been organized in order to offer a better opportunity for graduate study to students from abroad by instructing all courses in the English language.

The Program is organized jointly by the Field of Bioscience, Environmental Sciences, and Physics, Chemistry and Mathematical Sciences, and offers a master's program with areas of specialization in Mathematical Sciences, Physics, Earth Sciences, Chemistry, and Biology.

Upon enrollment, the candidates are each assigned to an advisor who will direct their thesis research for two years in the designated field of specialization. The degree of Master of Science will be awarded in recognition of thesis research and course work including seminars, with a minimum of 30 credit hours (thesis:12, course work:12, seminar:6). Some of the courses may include laboratory work and training.

GUIDELINES FOR APPLICATION (Spring 2019)

1. Study Areas and Number of International Students for Admission

A total of about 3 students will be accepted for enrollment under the Okinawa International Marine Science Program within the Graduate School of Engineering and Science, University of the Ryukyus.

2. Qualifications Required for Applicants

(1) Education: Graduates from universities, who have completed 16 years of formal education outside Japan, or those who have qualifications equivalent to university graduates.
(2) Health: Those who are certified as healthy, both physically and mentally; in particular, not suffering from tuberculosis, leprosy, cholera, other contagious diseases, chronic diseases without effective medical cure, or mental disorder.
(3) Language: Applicants must be fluent in English.
(4) Time limit for arrival in Japan: By April 1, 2019.

Remarks:

1) Military personnel will not be admitted to this Program if they remain on duty (applications by such persons will be rejected).
2) Those who do not arrive within the time limit will be subject to cancellation of their admission.
3) Those applicants who failed to graduate by March 2019 will be subject to cancellation of their admission.

3. Expenses

(1) Entrance Examination Fee: 30,000 yen
(2) Admission Fee: 282,000 yen
(3) Tuition: a total of 535,800 yen for one year, to be paid in October and April in two divided installments.

4. Evaluation of Applicants and Scope of the Special English Program

(1) The University of the Ryukyus will evaluate the applicants based on their documents and the results will be announced to the individual applicants in January 2019.
(2) Successful applicants will be enrolled as full-time graduate students and they will be expected to accomplish course work and thesis research (Master of Science degree to be awarded) in two years, under supervision and instruction exclusively in English.

5. Formalities of Application

All of the following documents must be received by the Graduate School of Engineering and Science of the University of the Ryukyus, before deadline, December 10, 2018. They must be submitted by the head of the graduate school if the applicant is a graduate student; by the head of the institution or establishment if employed; and by the dean of the university from which the applicant graduated, if he or she is now without any formal affiliation.

The following documents together with the examination fee payment should be sent by registered airmail and insured.

(1) Completed Application Form (use the form supplied) (Form I-i, I-ii, I -iii)
(2) Letter of Guarantee (Form IV)
(3) Health Certificate (by public hospital within the past 6 months) (Form II)
(4) Certificate of Graduation or Diploma (undergraduate, and graduate), or Certified Letter from the university at which the applicant is currently enrolled, stating the expected graduation date.
(5) Official Academic Transcript (undergraduate and graduate) from the university and their English translation.
(6) Academic Grade Conversion Sheet (on 3.0 scale)
(7) Certificate of Citizenship or Proof of Residence in the applicant's home country.
(8) Letter of Recommendation, addressed to the University of the Ryukyus, by the dean or head of the institution/employing body. (Form III)
(9) Letter(s) of Reference from the major professor and/or supervisor who has personal knowledge of the applicant.
(10) Photograph (upper front figure without hat, taken within 6 months passport sized 4.5cm× 3.5cm), name and nationality indicated on the reverse side, and to be fixed on the specified part of the application form. One additional photograph (same as above), name and nationality indicated on the reverse side, should be supplied in an envelope.
(11) AN OFFICIAL TOEFL SCORE of 550 (Paper-based Test Score)/213 (Computer-based Test Score)/79-80 (Internet-based Test Score) or above for applicants whose instructional language at their home institution is NOT English. You are required to submit an original or certified copy of an OFFICIAL TOEFL score report. Certificate indicating the medium of instruction is English issued by university authorities for applicants whose instructional language at their home institution is English.
(12) Entrance Examination Fee of 30,000 yen should be paid by bank transfer before application deadline, December 10, 2018. Refer to the payment information below.
※Transfer fee will be charged separately.

Name of Bank: Bank of the Ryukyus (Bank code No. 0187)
Name of Branch: Ginowan Branch (Branch code No. 512)
SWIFT Code: RYUBJPJZ
Account Number: 428711
Name of Account Holder: KOKURITSUDAIGAKUHOUJIN RYUKYUDAIGAKU
Account Holder's Address: 1 Senbaru, Nishihara, Okinawa 903-0213, Japan
Bank Address: 1-5-3 Ginowan, Okinawa 901-2211, Japan
Bank Phone Number: +81-98-893-2231

*Please e-mail us to notify when you send a wire transfer.
E-mail: rggakmu@to.jim.u-ryukyu.ac.jp
*Please pay any and all applicable bank transfer fees in addition to the examination fee. Ask your bank for details.

(13) Make a publication list for books, papers, and Bachelor's and Masters thesis, if applicable. State author's name(s), publication year, title, name of journal (vol. and no.), name and address (city name) of publisher, and pages.

Remarks:

1) The above documents should be written in English on the forms supplied by typewriter or in print.
2) Applications will not be accepted if any of the above documents are incomplete, incorrect, or lacking supporting evidence. They will not be accepted if they arrive after the deadline.
3) All submitted documents will be retained and will not be returned to the applicants. The examination fee will not be refunded.
4) The information for documents (1), (2), (3), and (7) must be written on the forms provided.
5) The Letters of Recommendation and Reference should indicate English proficiency of the applicants as excellent, good, or fair.

6. Application Deadline

December 10, 2018

7. Reservations

If a serious falsehood is found in the application documents, admission may be cancelled even after enrollment.

8. Other Notes

(1) Successful applicants are expected to study and understand the geography, climate customs and habits of Okinawa as well as the general features and conditions of the University of the Ryukyus. Useful information is found in the references supplied with these guidelines.
(2) Student Dormitory may be available for accommodation at reasonable cost, if there are vacancies.
(3) The areas of research conducted by the faculties, and curricula of the Program are outlined in the following section.

Correspondence

Applications must be sent by registered air mail by the head of the affiliated institution or employing body on behalf of the applicant.
All the correspondence related to this application should be addressed to:

Academic Affairs Unit (Faculty of Science)
Graduate School of Engineering and Science
University of the Ryukyus
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FACULTY MEMBERS AND THEIR RESEARCH INTERESTS

MATHEMATICAL SCIENCES

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Statistics (Mathematics)
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PHYSICS

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Solid state physics, magnetism and superconductivity of strongly correlated electron systems studied by neutron scattering and magnetic and transport measurements (Experimental Physics)
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Condensed matter physics, especially physics at solid surfaces (Theoretical Physics)
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Solid state physics, magnetic and transport properties of rare earth intermetallic compounds (Experimental Physics)
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Condensed matter theory, especially electron correlations in solids
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EARTH SCIENCES

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2019 SUBJECTS (Science)

OIMAP (Okinawa International Marine Science Program)

Table (Article 5) Master's Program

Course: Chemistry, Biology and Marine Science

FIELD			SUBJECT	CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
BIOSCIENCE	REQUIRED	COMMON	Advanced Seminar	6	22.5	1,2	Fall & Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.	All faculty members
			Thesis Research	12	90	1,2	Fall & Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.	All faculty members
	ELECTIVE	SPECIAL	Evolutionary Ecology of Reef Animals Ⅰ	2	30	1,2	Fall	Reviews and discussions of reproductive strategies, life-history strategies, population dynamics and population genetics of marine organisms, with emphasis on colonial animals.	Sakai, K.
			Evolutionary Ecology of Reef Animals Ⅱ	2	30	1,2	Spring	Reviews and discussions of reproductive strategies, life-history strategies, population dynamics and population genetics of marine organisms, with emphasis on colonial animals.	Sakai, K.
			Advanced Topics in Marine Animal Behavior Ⅰ	2	30	1,2	Fall	Topics in behavioral studies for marine animals, such as biotelemetry measurement, ethology and comparative psychology. This class deals mainly with cephalopods as a model animals for this field.	Ikeda, Y.
			Advanced Topics in Marine Animal Behavior Ⅱ	2	30	1,2	Fall	Topics in behavioral studies for marine animals, such as biotelemetry measurement, ethology and comparative psychology. This class deals mainly with cephalopods as a model animals for this field.	Ikeda, Y.
			Advanced Fisheries Biology	2	30	1,2	Fall	Life history and fishing methods of fishes in Japan (sardine, herring, mackerel, yellowtaile, sea bream, flounder, ayu, etc.).	Tachihara, K.
			Advanced Plant Taxonomy	2	30	1,2	Spring	Classification and phylogeny of the angiosperms with special reference to the orchid family.	Yokota, T.
			Plant Phylogeny and Evolution	2	30	1,2	Fall	Recent advances in flowering plant phylogeny and evolution.	Denda, T.
			Life of Tunicates	2	30	1,2	Spring	Introduction to specific features and functions supporting the life of marine invertebrates, dealing with tunicates.	Hirose, E.
			Stress Physiology	2	30	1,2	Fall	Introduction to basic principles of stress physiology, including the production and scavenging mechanisms of active oxygen and active nitrogen in living organisms.	Yamasaki, H.
			Advanced Cell Biology	2	30	1,2	Fall	Current topics in cell biology, with emphasis on the biogenesis of organelles and cytoskeleton.	Itoh, R.
			Advanced Molecular Physiology	2	30	1,2	Spring	Fundamentals of molecular biology, cellular physiology, developmental biology, immunology, and neurobiology. Focuses on mammalian and insect systems.	Otaki, J.
			Advanced Scientific Manuscript Writing	2	30	1,2	Spring	Structure and organization of scientific publications, as well as how to organize and write manuscripts will be discussed. Special attention will be put on logical organization and troublesome grammar points. Classes in English.	Reimer, J. D.
			Advanced Comparative Endocrinology	2	30	1,2	Fall	Endocrine organs and various hormones in vertebrates. Roles of hormones in metabolism, reproduction, and behavior.	Takemura, A.
			Marine Molecular Ecology	2	30	1,2	Fall	Principles and fundamental methods in aquatic animals using molecular and population genetics. Practical method on DNA analysis.	Imai, H.
			Systematic Zoology	2	30	1,2	Spring	Principles and practices of taxonomy, systematics, and phylogenetics of animals, with reference to contemporary discussions on relevant conceptual issues.	Toda, M.
			Responses in Plant Morphogenesis to Environmental Signals	2	30	1,2	Fall	Current topics about the signal cascades of plant morphogenesis caused by environmental signals.	Tanaka, A.
			Animal Evolution and Diversity	2	30	1,2	Fall	Introduction to evolution and diversity in vertebrates.	Tominaga, A.

2019 SUBJECTS (Science)

OIMAP (Okinawa International Marine Science Program)

Table (Article 5) Master's Program

Course: Chemistry, Biology and Marine Science

FIELD			SUBJECT	CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
BIOSCIENCE	ELECTIVE	SPECIAL	Advanced Marine Biology	2	30	1,2	Spring	After the revision of basic marine biology concept, the class will discuss about littoral and pelagic ecosystems from major geographic regions (tropical, temperate and polar).	Harii, S.
			Molecular Biochemistry of Plant Biodegradation	2	30	1,2	Fall	Reviews on the current topics in biodegradation of plants with special reference to the mechanisms by which lignocellulolytic enzymes are involved in breakdown of plant cell walls.	Tokuda, G.
			Advanced Plant Morphology	2	30	1,2	Spring	Structure and function of reproductive organs in tropical and subtropical plants are discussed. Pollination mechanisms are also subjects for discussion.	Takaso, T.
			Advanced Evolutionary Ecology	2	30	1,2	Spring	Evolutionary analysis of form and function, life-history, and sexual dimorphism in animals.	Yamahira, K.
			Marine Environmental Biology and Ecology	2	30	1,2	Spring	Overview of current research on marine environmental biology.	Kurihara, H.
			Advanced Coral Reef Ecology	2	30	1,2	Spring	Reviews on current topics in coral reef ecology.	Nakamura, T.
			Advanced Marine Zootaxonomy	2	30	1,2	Spring	Practices of zootaxonomy of marine invertebrates.	Naruse, T.
			Interaction between Coral and Associated Organisms	2	30	1,2	Fall	Overview of the biological and chemical interactions between corals and other marine organisms.	Yamashiro, H.
			Advanced Seminar of Evolutionary Reproductive Biology	2	30	1,2	Spring	Instruction of reproductive biology in terms of evolutionary aspects and practice of analyses with laptop computer.	Morita, M.
			Advanced Plant Taxonomy and Phytogeography	2	30	1,2	Spring	Principles and fundamental methods in plant taxonomy and phytogeography with special reference to the diversity of flowering plants.	Naiki, A
			Advanced Molecular and Cellular Biology	2	30	1,2	Spring	Topics in organelle dynamics and function. Focuses on single membrane bound organelles such as endoplasmic reticulum, Golgi apparatus, peroxisomes, and lysosomes.	Yagisawa, F.
		COMMON	Introduction to Oceanography Ⅰ	2	30	1,2	Fall	General introductory course on marine science.	Nakamura, T.
			Introduction to Oceanography Ⅱ	2	30	1,2	Spring	General introductory course on oceanography.	Kurihara, H.
			International Field Course	2	30	1,2	Spring	Field course with foreign universities.	Members of biology field
		FUNDAMENTAL	Essential Research Skills and Ethics in Science	1	15	1,2	Spring	Ethical foundations of scientific practices to skills of scientific presentation.	Elisseeva, O.

Requirements for course completion:

Students must obtain a total of 30 or more credits including 6 credits from Advanced Seminar and 12 credits from Thesis Research on Bioscience Field. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Master's thesis.

Remarks regarding the following subjects:
Credits for Advanced Seminar are earned over 2 years (3 credits received per year).
Credits for Thesis Research are earned over 2 years (6 credits received per year).

2019 SUBJECTS (Science)

Table (Article 5) Master's Program

OIMAP (Okinawa International Marine Science Program)
Course: Chemistry, Biology and Marine Science
Physics and Earth Sciences

FIELD	SUBJECT			CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
ENVIRONMENTAL SCIENCE	REQUIRED	COMMON	Advanced Seminar	6	22.5	1,2	Fall & Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.	All faculty members
			Thesis Research	12	90	1,2	Fall & Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.	All faculty members
	ELECTIVE	SPECIAL	Island Ecology	2	30	1,2	Fall	Principles of island biogeography and related topics.	Izawa, M.
			Advanced Phycology	2	30	1,2	Fall	Current topics on taxonomy, phylogeny, morphology, genetics, ecology etc. of algae and related organisms.	Suda, S.
			Advanced Plant Ecology	2	30	1,2	Fall	Review of current topics on the maintenance and origin of biodiversity patterns based on taxonomic, functional and phylogenetic properties.	Kubota, Y.
			Topics on Marine Chemical Ecology	2	30	1,2	Spring	Recent research on chemicals involved in the ecology of marine organisms will be reviewed.	Tanaka, J.
			Introduction to Atmospheric Chemistry	2	30	1,2	Spring	This course provides an overview of atmospheric chemistry and a working knowledge of the critical issues that atmospheric chemists face today.	Arakaki, T.
			Environmental Analytical Chemistry Ⅰ	2	30	1,2	Spring	This course deals with qualitative and quantitative analytical chemistry, especially principles and procedures of chemical analyses of environmental water sample.	Fujimura, H.
			Environmental Analytical Chemistry Ⅱ	2	30	1,2	Fall	This course deals with qualitative and quantitative analytical chemistry, especially principles and procedures of chemical analyses of environmental water sample.	Uemura, R.
			Practical Skills in Presentation, Publication and Patent Application	2	30	1,2	Fall	Learning and training presentation/writing skills for research outputs such as: (1) oral presentation at conference (2) poster presentation at conference (3) patent search and submission (4) scientific paper	Nakagawa, T.
			Introduction to Natural Product Chemistry	2	30	1,2	Spring	This course deals with isolation, structure determination and biological activities of natural products.	Teruya, T.
			Advanced Ocean Remote Sensing Ⅰ	2	30	1,2	Spring	Principles of ocean remote sensing such as radiometer, scatterometer and altimeter. Applications of ocean remote sensing to physical oceanography.	Hisaki, Y.
			Advanced Ocean Remote Sensing Ⅱ	2	30	1,2	Spring	Principles of ocean remote sensing such as radiometer, scatterometer and altimeter. Applications of ocean remote sensing to physical oceanography.	Hisaki, Y.
			Advanced Meteorology Ⅰ	2	30	1,2	Fall	Lecture on basic theory and recent advances of atmospheric sciences, including the evolution and structure of precipitating cloud systems in the tropical and subtropical regions.	Yamada, H.
			Advanced Meteorology Ⅱ	2	30	1,2	Spring	Lecture on basic theory and recent advances of atmospheric sciences, including the evolution and structure of precipitating cloud systems in the tropical and subtropical regions.	Yamada, H.
			Advanced Numerical Weather Prediction Ⅰ	2	30	1,2	Fall	Fundamentals on numerical weather prediction, including basic equations, computer programming, and performing idealized and real through experiments.	Itoh, K.
			Advanced Numerical Weather Prediction Ⅱ	2	30	1,2	Spring	Fundamentals on numerical weather prediction, including data analysis, forecast errors, and data assimilation.	Itoh, K.
			Advanced Metamorphic Petrology Ⅰ	2	30	1,2	Fall	Petrogenesis and dynamics of metamorphic rocks and its geotectonic implications.	Baba, S.
			Advanced Metamorphic Petrology Ⅱ	2	30	1,2	Spring	Petrogenesis and dynamics of metamorphic rocks and its geotectonic implications.	Baba, S.

2019 SUBJECTS (Science)

OIMAP (Okinawa International Marine Science Program)
Course: Chemistry, Biology and Marine Science
Physics and Earth Sciences

Table (Article 5) Master's Program

FIELD	SUBJECT			CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
ENVIRONMENTAL SCIENCE	ELECTIVE	SPECIAL	Advanced Geochemistry Ⅰ	2	30	1,2	Fall	Isotopic and trace element geochemistry of igneous rocks and its geotectonic implications.	Shinjo, R.
			Advanced Geochemistry Ⅱ	2	30	1,2	Spring	Isotopic and trace element geochemistry of igneous rocks and its geotectonic implications.	Shinjo, R.
			Geogravity Ⅰ	2	30	1,2	Fall	Basic theory, gravimetry, data reduction and analysis method, application to geodesy, potential theory in conjunction with geomagnetism, application to crustal movement and geological structure.	Matsumoto, T.
			Geogravity Ⅱ	2	30	1,2	Spring	Basic theory, gravimetry, data reduction and analysis method, application to geodesy, potential theory in conjunction with geomagnetism, application to crustal movement and geological structure.	Matsumoto, T.
			Crustal Movement Monitoring Ⅰ	2	30	1,2	Fall	Basic theory for the monitoring of crustal movement, volcanic activity, earthquake, etc., based on radiation science and geomagnetism.	Furukawa, M.
			Crustal Movement Monitoring Ⅱ	2	30	1,2	Spring	Basic theory for the monitoring of crustal movement, volcanic activity, earthquake, etc., based on radiation science and geomagnetism.	Furukawa, M.
			Advanced Seismology Ⅰ	2	30	1,2	Fall	This course constitutes an overview of observational and theoretical seismology and the utilization of seismic waves for the study of the earth's interior. Topics include elastic wave propagation, seismic ray theory, interpretation of travel times, surface wave, and seismic tomography.	Nakamura, M.
			Advanced Seismology Ⅱ	2	30	1,2	Spring	This course constitutes an overview of observational and theoretical seismology and the utilization of seismic waves for the study of the earth's interior. Topics include elastic wave propagation, seismic ray theory, interpretation of travel times, surface wave, and seismic tomography.	Nakamura, M.
			Coral Reef Earth Science Ⅰ	2	30	1,2	Fall	Lecture on recent advances and topics on earth sciences related to coral reefs, which include geomorphology, geology, geohistory, paleontology, carbonate sedimentology, paleoceanography, environmental sciences, and geoecotechnology.	Fujita, K.
			Coral Reef Earth Science Ⅱ	2	30	1,2	Spring	Lecture on recent advances and topics on earth sciences related to coral reefs, which include geomorphology, geology, geohistory, paleontology, carbonate sedimentology, paleoceanography, environmental sciences, and geoecotechnology.	Fujita, K.
			Earth History and Palaeontology Ⅰ	2	30	1,2	Fall	This lecture will help you develop key knowledge and research skills in the field of earth history and palaeontology. Lecture on basic training in earth sciences, with a specialisation in stratigraphy and palaeontology.	Sentoku, A
			Earth History and Palaeontology Ⅱ	2	30	1,2	Spring	This lecture will help you develop key knowledge and research skills in the field of earth history and palaeontology. Lecture on basic training in earth sciences, with a specialisation in stratigraphy and palaeontology.	Sentoku, A
			Advanced Crustal Hydrosphere Geochemistry	2	30	1,2	Spring	Reviews of geochemical studies about fluids and gasses beneath the seafloor.	Toki, T.
		COMMON	Introduction to Oceanography Ⅰ	2	30	1,2	Fall	General introductory course on marine science.	Nakamura, T.
			Introduction to Oceanography Ⅱ	2	30	1,2	Spring	General introductory course on oceanography.	Kurihara, H.
			International Field Course	2	30	1,2	Spring	Field course with foreign universities.	Members of biology field
		FUNDAMENTAL	Essential Research Skills and Ethics in Science	1	15	1,2	Spring	Ethical foundations of scientific practices to skills of scientific presentation.	Elisseeva, O.

Requirements for course completion:

Students must obtain a total of 30 or more credits including 6 credits from Advanced Seminar and 12 credits from Thesis Research on Environmental Science Field. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Master's thesis.

Remarks regarding the following subjects:
Credits for Advanced Seminar are earned over 2 years (3 credits received per year).
Credits for Thesis Research are earned over 2 years (6 credits received per year).

2019 SUBJECTS (Science)

Table (Article 5) Master's Program

OIMAP (Okinawa International Marine Science Program)
Course: Chemistry, Biology and Marine Science
Physics and Earth Sciences
Mathematical Sciences

FIELD	SUBJECT			CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
PHYSICS, CHEMISTRY, AND MATHEMATICAL SCIENCES	REQUIRED	COMMON	Advanced Seminar	6	22.5	1,2	Fall & Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.	All faculty members
			Thesis Research	12	90	1,2	Fall & Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.	All faculty members
	ELECTIVE	SPECIAL	Advanced Chemistry of Marine Toxins Ⅰ	2	30	1,2	Fall	Studies on marine toxins related to exploitation of food and medical resources. Reviews on origins, properties, and structures of marine toxins.	Ueda, K.
			Advanced Chemistry of Marine Toxins Ⅱ	2	30	1,2	Spring	Studies on marine toxins related to exploitation of food and medical resources. Reviews on origins, properties, and structures of marine toxins.	Ueda, K.
			Biochemistry of Metal Ions	2	30	1,2	Spring	Lecture on roles of metal irons in biology.	Asato, E.
			Molecular Spectroscopy Ⅰ	2	30	1,2	Spring	Spectroscopies to characterize molecular properties and the applications in biophysical chemistry.	Yonekura, N.
			Transport Properties of Metals and Alloys	2	30	1,2	Fall	Electrical resistivity and thermopower of metals and alloys.	Nakama, T.
			Theory of Dielectrics	2	30	1,2	Fall	Lecture on structural phase transition of ferroelectric crystals.	Fukami, T.
			Particle Beam Physics	2	30	1,2	Fall	Introduction to crystallography, X-ray and neutron scattering.	Aso, N.
			Advanced Condensed Matter Physics	2	30	1,2	Spring	Electronic structure and the Fermi Surface of rare earth and actinide compounds.	Maehira, T.
			Field Theory	2	30	1,2	Spring	Introduction to quantum field theory.	Maeno, M.
			Solid State Physics at Low Temperatures	2	30	1,2		Lecture on phase transition phenomena based on Fermiology and transport properties that appear in ultra-low temperature.	Hedo, M.
			General Relativity and Its Application	2	30	1,2	Fall	Lecture on general relativity from scratch and explanation of the application to cosmology.	Oda, I.
			Introduction to Relativistic Astrophysics	2	30	1,2	Fall	Lecture on physics of compact objects-black holes, white dwarfs, and neutron stars.	Uryu, K.
			Introduction to Physics of Materials	2	30	1,2	Spring	Lecture on theoretical and computational methods to understand magnetism.	Yasuda, C.
			Elementary Excitations in Solid State Physics	2	30	1,2	Spring	Quantum theory of plasmons and phonons in solids.	Inaoka, T.
			Electron Correlation	2	30	1,2	Spring	Quantum theory of electron correlation in solid.	Shiina, R.
			Introduction to Polymer Physics	2	30	1,2	Spring	Lecture on physics of polymers.	Nakasone, K.

2019 SUBJECTS (Science)

OIMAP (Okinawa International Marine Science Program)
Course: Chemistry, Biology and Marine Science
Physics and Earth Sciences
Mathematical Sciences

Table (Article 5) Master's Program

FIELD	SUBJECT			CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
PHYSICS, CHEMISTRY, AND MATHEMATICAL SCIENCES	ELECTIVE	SPECIAL	Magnetic Resonance in Solids	2	30	1,2	Fall	Lecture on NMR and NQR spectroscopy for strongly correlated electron systems.	Yogi, M.
			Foundations of Surface Physics	2	30	1,2		Basic physical properties of surfaces, semiconductor and metal surfaces, theoretical approaches to surface physics.	Yanagisawa, S.
			Physics of Disordered Materials	2	30	1,2		Lecture on physical properties of disordered materials.	Tahara, S.
			Advanced Astrophysics	2	30	1,2	Spring	Star formation, galaxy formation, and related astrophysics.	Taniguchi, K.
			Physics of Magnetic Materials	2	30	1,2	Spring	Lecture on magnetic properties of solid state.	Kobayashi, R.
			Physics of Complex Systems	2	30	1,2	Fall	Lecture on fundamental ideas to analyze complex systems.	Yamamoto, K.
			Stochastic Processes and Their Applications Ⅰ	2	30	1,2	Fall	Introduction to theory of stochastic processes and its applications.	Sugiura, M.
			Stochastic Processes and Their Applications Ⅱ	2	30	1,2	Spring	Introduction to theory of stochastic processes and its applications.	Sugiura, M.
			Advanced Topics in Mathematical Statistics Ⅰ	2	30	1,2	Fall	Introduction to recent developments of theory of mathematical statistics and their applications.	Chen, C.
			Advanced Topics in Mathematical Statistics Ⅱ	2	30	1,2	Spring	Introduction to recent developments of theory of mathematical statistics and their applications.	Chen, C.
		COMMON	Introduction to Oceanography Ⅰ	2	30	1,2	Fall	General introductory course on marine science.	Nakamura, T.
			Introduction to Oceanography Ⅱ	2	30	1,2	Spring	General introductory course on oceanography.	Kurihara, H.
			Special Lecture on Physics Ⅰ–Ⅵ	1	15	1,2	Fall & Spring	The lecture gives various current topics in the field of physics.	
		FUNDAMENTAL	Essential Research Skills and Ethics in Science	1	15	1,2	Spring	Ethical foundations of scientific practices to skills of scientific presentation.	Elisseeva, O.

Requirements for course completion:

Students must obtain a total of 30 or more credits including 6 credits from Advanced Seminar and 12 credits from Thesis Research on Physics, Chemistry, and Mathematical Science Field. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Master's thesis.

Remarks regarding the following subjects:
Credits for Advanced Seminar are earned over 2 years (3 credits received per year).
Credits for Thesis Research are earned over 2 years (6 credits received per year).