

Tokyo University of Marine Science and Technology

“Support Project for Emergent Ocean Research and Industrial Human Resource Development”

AY2021 Fall Student Application Guidelines (draft)

1. Project Objective

The Support Project for Emergent Ocean Research and Industrial Human Resource Development (hereafter, The Project) aims to provide an environment where students can dedicate themselves to their research and develop Emergent Ocean Research and Industrial Human Resources who aspire to create new marine industries and conduct research that contributes to solving issues in the marine society and social reform. The purpose of which is to develop doctoral graduates who will be the foundation to the future of Japan’s science, technology, and innovation and undertake research that will contribute to solving social issues. The aim of The Project will be achieved by providing research incentives and research funds to doctoral students at Tokyo University of Marine Science and Technology (hereafter, TUMSAT). TUMSAT will also construct necessary support programs throughout the University, based on the Support for Pioneering Research Initiated by the Next Generation implemented by the Japan Science and Technology Agency (JST).

2. Overview of The Project

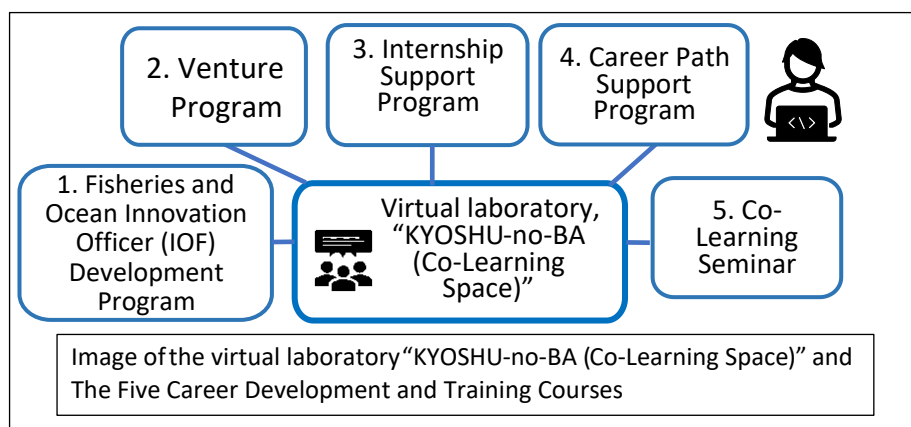
To develop Emergent Ocean Research and Industrial Human Resources, TUMSAT will use a selection process to select students who aspire to solve societal issues and are highly motivated to contribute to a marine version of a digital transformation for society. TUMSAT will provide the below financial and academic support to the selected students.

(1) Financial Support

- ① ¥2,400,000, an amount equivalent to living expenses, will be provided annually as a research incentive. A fixed amount will be separately provided for research funds in light of research content.

(2) Academic Support

- ① Students will belong to the **virtual laboratory, Co-Learning Space**, a platform that promotes emergence by learning from one another through discussion that transcends the boundaries of students’ specializations.
- ② Students will take the **Five Career Development and Training Courses** that will encourage synergy through interdisciplinary exchange
- ③ **Mentor Faculty will be assigned to each student.** Mentor Faculty have excellent educational and research achievements in a different field to the student’s supervisor.



3. Project Eligibility

Students eligible to apply to The Project must fulfill all the below requirements from ① to ②.

- ① Students who are doctoral students at TUMSAT Graduate School as of October 1, 2021 (generally students who were enrolled at the TUMSAT in their first year, not including students on a leave of absence) and who can complete their degree within the standard duration of the degree program.
- ② Students who do not fall under any of the below categories:
 - (1) Students who are receiving the Ministry of Education, Culture, Sports, Science and Technology's "University Fellowship Program for the Creation of Innovation in Science and Technology"
 - (2) Those who are receiving the Research Fellowship for Young Scientists at the Japan Society for the Promotion of Science
 - (3) Students who are deemed to be receiving a stable income that exceeds ¥2,400,000 from TUMSAT, a company, or have started their own company, in the form of salary or executive compensation
 - (4) International students who are receiving the Japanese Government Scholarship, or any other scholarship from their home country
 - (5) Students who are receiving a scholarship from a government or a private organization and are not permitted by the the government or private organization from which they are receiving the scholarship to receive any other financial aid apart from these scholarships

Note: Students receiving scholarships from the Japan Student Services Organization (JASSO) are permitted to receive the research incentive alongside their JASSO scholarship.

4. Application Requirements

Students who fall under any of the below categories are eligible to apply for The Project.

- ① Those who belong to the Development of WISE Program to foster AI professionals for Marine Industries as a student
- ② Students who have attended OQEAIOUS, a project to strengthen international collaboration for master's programs
- ③ Students who are recommended because they are deemed to be excellent by their supervisor

5. Number of Students Accepted (For 2021 Fall Semester)

Approx. five students

6. Project Duration

From 2021 fall semester until the completion of the doctorate

7. Application Procedure

Ideally, students should apply after attending an information session for master's students enrolled at TUMSAT who intend to go on to study for a doctorate degree and for doctorate students. Information regarding the information session schedule will be provided on the university website below.

<https://www.g.kaiyodai.ac.jp/>

(1) Application Period: Wednesday, December 8, 2021, to 10:00 am, Wednesday, December 22, 2021 (JST)
(Applications after the deadline will not be accepted)

(2) Application Method: Please complete the necessary items in **Forms 1.** and **2.** listed below and submit your application by email within the application period to the address listed below.

Form 1. Application form (when applying, you must have the approval of your supervisor) (Format: MS Word document)

Form 2. Research Plan (Format: MS Word document)

Note: When applying through ③ of 4. Application Requirements, you must provide a written recommendation in an email by the recommending faculty member.

[Where to submit your application] Please send an email with “Application for the Emergent Ocean Human Resources Project” as the subject and send the email address listed below under 14. Inquiries.

8. Selection Process

A comprehensive evaluation using the two below screening methods will be conducted by the screening team of The Project’s executive committee. Based on this, the supervisor of The Project, i.e. University President, will make the final decision.

- (1) Document screening:** Screening of the documents listed in 7. Application Procedure. (Applicants will be informed of the results by email)
- (2) Presentation screening:** Screening of a presentation and Q&A session of the research plan listed in 7. Application Procedure.
 - ① Time and date of the presentation: Scheduled for the afternoon of Friday, January 7, 2022 (Applicants who pass the document screening will be officially notified of the time and date by email.)
 - ② Format: 10-minute presentation and subsequent 10-minute Q&A session (held online, in Japanese)
 - ③ Applicants should prepare a MS PowerPoint file of two to three slides that summarize the research plan referenced in (2) of 7. Application Procedure.

9. Factors evaluated

Applicants’ achievements and ability, motivation and degree of societal orientation, research achievements, internationality, AI-related skill set, and attendance of TUMSAT’s career development and training programs.

10. Results

Applicants will be informed within one week of the presentation date listed in the above (2) of 8. Selection Process.

11. Obligations of the Selected Students (hereafter, Project Students)

- The Project Students will belong to Co-Learning Space, a virtual co-learning laboratory, and must have regular discussions with their Mentor Faculty assigned for The Project, and attend all of The Project’s courses.
- They must be taking or have completed the education in research ethics, APRIN e-learning program, before participating in The Project.
- Each academic year, they must report the status of their research and The Project to The Project supervisor.
- The Project Students consent to having their name and other information published on the TUMSAT website and Japan Science and Technology Agency’s (JST) website.
- The Project Students must clearly state on their research papers and research outcome presentations that they received support from The Project.
- The Project Students must cooperate with monitoring surveys conducted by JST.
- The Project Students must attend the “Doctoral Students Exchange Meeting” held by JST with students from other universities (held once, approx. two days, one night).
- The Project Students must cooperate with follow-up studies into their career after the support period has ended (ten years or more).

12. Considerations Concerning Funding for Project Students

- The Project Students must adhere to regulations prescribed by TUMSAT concerning the handling of public research funds, ethical research, and accounting.
- The Project Students must report as necessary on the usage of the research funds and other matters when

requested by The Project supervisor.

- If the Project Students wish to conduct research at a foreign university, travel expenses may be provided from the research funds.
- The grant provided as an amount equivalent to living expenses is treated as miscellaneous income under tax law (Project Students will be required to file a tax return as this will be subject to income tax and resident tax). Therefore, Project Students must inform their support obligor (parent, etc.) and must inquire about the handling of support with regards to health insurance and support allowance with the person reasonable for such matters at their support obligor's workplace or applicable location. The Project Students must also inquire at their local tax office about the handling of support regarding income tax.
- The grant provided as an amount equivalent to living expenses will be paid directly from the university to the Project Student's bank account. However, the research funds will be provided from the Mentor Faculty assigned for The Project.
- If any of the below items are applicable, then the payment of the research incentives for The Project will be discontinued.
 - (1) If the Project Student commits acts unbecoming a Project Student, such as being subjected to disciplinary action under TUMSAT's regulations.
 - (2) If the Selected Student ceases to be enrolled at TUMSAT due to withdrawal, expulsion, or transfer to another university.
 - (3) If the Selected Student takes a leave of absence or repeats a year.
 - (4) If the research or progress of The Project that is reported to The Project supervisor each academic year is deemed to be unbecoming a Project Student.
 - (5) If the Select Student no longer meets the roject eligibility or application requirements.

13. Handing of Personal Information

Personal information included in the application documents will be handled under TUMSAT's Personal Information Protection Guidelines and will be used to the extent necessary to conduct The Project.

14. Inquires

[Matters related to application documents] Email address for applications for the TUMSAT Support Project for Emergent Ocean Research and Industrial Human Resources:

doctoral-c-pj@o.kaiyodai.ac.jp (“@” should be one-byte character)

(Reference Information)

Overview of The Project's “Five Career Development and Training Courses” and “The Seven Competencies to be Acquired”

(1) Five Career Development and Training Courses

1. Fisheries and Ocean Innovation Officer (IOF) Development Program

[Objective] Students will begin to gain the ability to analyze the needs of society by acquiring skills in industrial-academic and regional cooperation and linking the ability to create problem-solving plans and consensus-building. As a result, in the future, students will become able to independently develop opportunities for joint research with companies and other entities and co-creation between companies and regions. This will enhance students' research activities and add the option of university research administrator to their career path. They will also be eligible for certification as a Fisheries and Ocean Innovation Officer.

[Content] The program is comprised of two-stage training, basic and specialized.

- 1) Basic training: A series of online lectures that follow the URA Skill Standards of the Ministry of Education, Culture, Sports, Science and Technology. Students will learn about Japanese science and technology policies, industry-academia collaboration skills, procurement and management of research funds, and the

management and utilization of intellectual property. Students will also gain the ability to manage R&D outcomes.

- 2) Specialized training: Through taking the below four training programs, students will promote collaborative R&D with stakeholders and learn the specialist skills to protect and utilize the outcomes of this R&D.
- (1) Intellectual Property Training: Training (including OJT) regarding the fundamentals of invention, academic procedures, prior art searching, patenting research outcomes, managing intellectual property, contract practice (including confidentiality, transfer of research outcomes, and joint-research contracts).
 - (2) Training in Addressing the Convention on Biological Diversity and Action Benefit Sharing (ABS): Knowledge regarding the Convention on Biological Diversity and ABS is essential for joint international research that deals with gene resources. Therefore, students learn the necessary procedures and problem-solving using case studies.
 - (3) Training on Acquiring External Funding: Students will gain the necessary knowledge and experience to acquire external funding through creating application documents for competitive research funding systems based on their research topic. Students are to aim to apply and obtain research funding if their application meets the requirements by the end of the training.
 - (4) Training on Consensus Building: Consensus building between collaborators, local communities, and corporations is an essential theme in opportunities for co-creation. In this training, students will be based at the Sanriku Satellite Office (Kesenuma City, Miyagi Prefecture) and touch upon regional and industrial issues related to the Great East Japan Earthquake. Students will conduct consensus building through group work with local stakeholders and make research proposals or social activity proposals to solve problems.

[Goal] By completing this program, students will obtain the expertise required to manage intellectual property and research funds, increase their understanding of economic and social systems, and develop their professional ethics.

2. Venture Development Program

[Objective] Students will learn the knowledge necessary to start a business to develop their interest in starting a business.

[Content] The program is comprised of lectures for learning essential knowledge and practical programs. The key elements of the program are listed below.

- 1) Lecture on Entrepreneurship: Students will gain the knowledge and mindset necessary to start a company by implementing proposals depicting future society and making plans for business ideas. While doing so, they will learn the basic knowledge required to start a company, such as corporate management, business planning, fundraising, and university-led venture company development programs in funding agencies.
- 2) Business Plan Contest: Through group work, students will learn networking to secure human resources and create a business model that simulates a blue economy while utilizing the knowledge for starting a business that they learned in the lecture on entrepreneurship. Students will formulate and develop a commercialization plan through a presentation conducted as if students were in an actual fundraising situation.
- 3) Entrepreneur Seminar: Instructors from fishery and marine companies are invited to conduct seminars to give lectures about their entrepreneurial experience and network with Project Students. The Entrepreneur Seminar is an opportunity for students to learn case studies and is held in coordination with the 5) Co-Learning Seminar.

[Goal] By completing this program, students will gain practical experience in entrepreneurship and the mindset to socially implement highly specialized research as social technology. Students will also gain skills in influencing others and networking.

3. Internship Support Program

[Objective] To gain experience at a company or research institution within Japan or overseas. Students will shape their ideal career development as doctoral graduates with the support of their mentor team, made of up the work location mentor and mentors from The Project.

[Content] In this program which is conducted as part of the Support Program for Career Path Development, support is given to students so that they can conduct short-term internships at cooperating companies or partner organizations (university organizations or research institutions).

[Goal] By completing this program, students will learn operations at a company firsthand, develop a specific image for the societal implementation of technology, and gain internationality and networking abilities that will allow them to make smooth connections between university and society.

4. Support Program for Career Path Development

[Objective] Students will discuss with their mentor team (comprised of operation team leader, mentor team leader, a distinguished faculty member that will be the students' mentor, the student's supervisor, and URA) through workshops about their specific career development as doctoral graduates and gain transferable skills while coordinating with companies, universities, and research institutions in Japan and overseas.

[Content] Consultations are held with Mentor Faculty who have excellent educational and research achievements in a different field to the student's supervisor.

[Goal] By completing this program, students will enhance their communication ability, internationalism, and interpersonal skills to develop their careers from university to society.

5. Co-Learning Seminar

[Objective] Students will gain practical transferrable skills and interdisciplinary skills.

[Content] Generally, co-learning seminars will be held once a month, workshops twice a year, and joint seminars once a year. These are led by the mentor team and are for students that belong to the virtual laboratory, Co-Learning Space.

[Goal] While coordinating with the above 1. to 4. programs, by taking this seminar, students will achieve synergy in their research, expand the scope of their research, enhance their AI-related skills, research ability (presentation skills discussion skill, analysis skill, and investigative skills) and interpersonal skills, and gain transferrable skills. This will be achieved through interdisciplinary exchanges that transcend the boundaries of specializations and occupations (such as multidisciplinary exchange, integration of cross-disciplinary research, contests between universities, etc.).

(2) The Seven Competencies to be Acquired

Table 1 The Seven Competencies to be Acquired

Competency	Occupational ethics	Analytical skills	Planning skills	Communication ability	Research ability	Internationalism	AI-related skills
Human resource development menu							
1. Fisheries and Ocean Innovation Officer (IOF) Development Program	○	○	○	○	○		
2. Venture Development Program		○	○	○	○		
3. Internship Support Program	○			○	○	○	○
4. Career Path Support Program	○			○	○	○	
5. Co-Learning Seminar	○	○	○	○	○	○	○

(3) One faculty member will be chosen and assigned to each student as Mentor Faculty. Mentor Faculty have excellent educational and research achievements in a different field to the student’s supervisor. Mentor Faculty will also be assigned to the Co-Learning Space and will hold co-learning seminars as a mentor team member.

(1-3) Collaboration system (educational content and collaboration system for the virtual laboratory, Co-Learning Space)

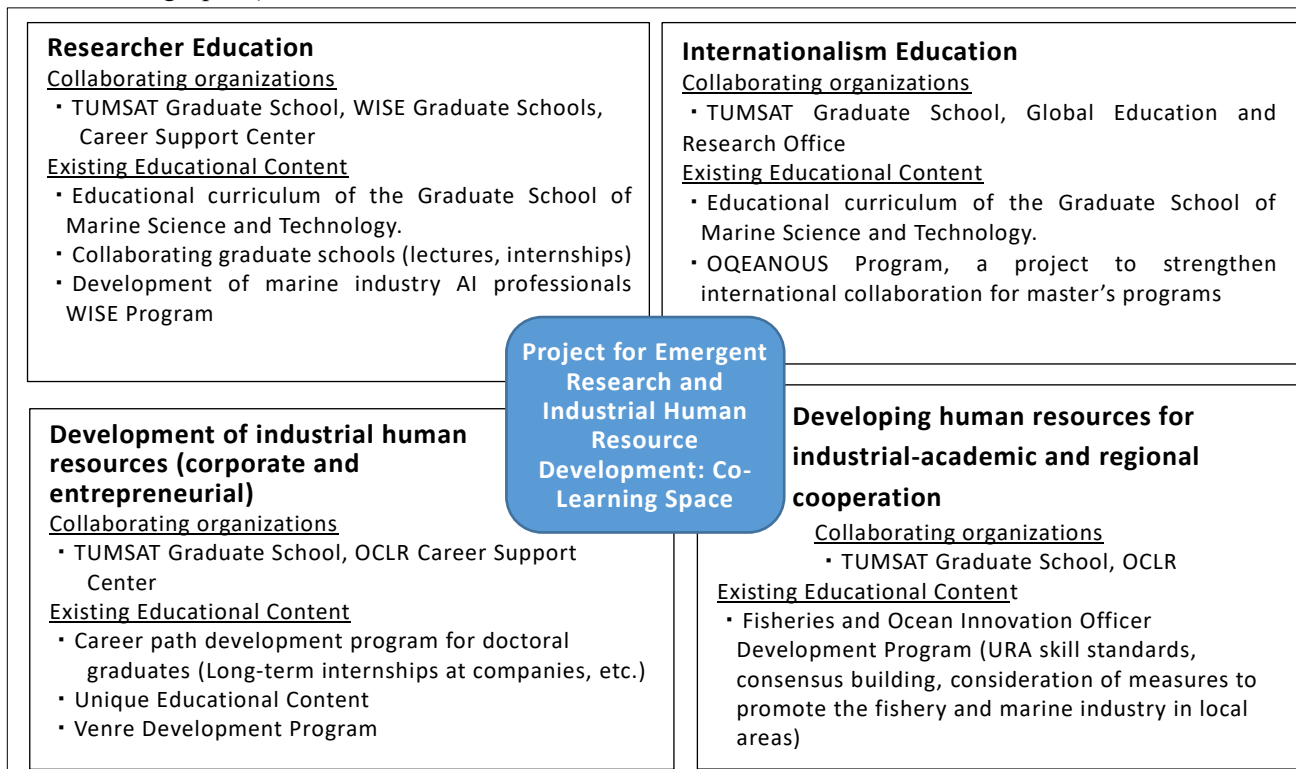


Image of Collaboration system of The Project

Annual Schedule (draft)

(1) Schedule for students selected in AY2021 Fall

We summarized the content of the annual schedule into two tables.

Table 2: AY2021 Implementation Schedule

Year/month	2021		2022		
	Dec.		Jan.	Feb.	Mar.
Content	- Open for applications- Screening- IOF Development Program	- Virtual laboratory	- Successful applicants selected	- Co-Learning Seminar	opened
	-Revision of University Regulations				

(2) Five-year schedule

Table 3: Schedule by academic year

Academic year	Class of AY2021 Content	Class of AY2022 Content	Class of AY2023 Content	Class of AY2024 Content	Class of AY2025 Content	Overall number of participants
	-Selection					5 students

1st academic year	<ul style="list-style-type: none"> process - Fisheries and Ocean Innovation Officer (IOF) Development Program - Co-Learning Seminar 					
2nd academic year	<ul style="list-style-type: none"> - Venture Development Program - Internship Support Program - Co-Learning Seminar 	<ul style="list-style-type: none"> - Selection process - Fisheries and Ocean Innovation Officer (IOF) Development Program - Co-Learning Seminar 				10 students
3rd academic year	<ul style="list-style-type: none"> - Career Path Support Program - Co-Learning Seminar (Follow up) 	<ul style="list-style-type: none"> - Venture Development Program - Internship Support Program - Co-Learning Seminar 	<ul style="list-style-type: none"> - Selection process - Fisheries and Ocean Innovation Officer (IOF) Development Program - Co-Learning Seminar 			15 students
4th academic year		<ul style="list-style-type: none"> - Career Path Support Program - Co-Learning Seminar (Follow up) 	<ul style="list-style-type: none"> - Venture Development Program - Internship Support Program - Co-Learning Seminar 	<ul style="list-style-type: none"> - Selection process - Fisheries and Ocean Innovation Officer (IOF) Development Program - Co-Learning Seminar 		15 students
5th academic year			<ul style="list-style-type: none"> - Career Path Support Program - Co-Learning Seminar (Follow up) 	<ul style="list-style-type: none"> - Venture Development Program - Internship Support Program - Co-Learning Seminar 	<ul style="list-style-type: none"> - Selection process - Fisheries and Ocean Innovation Officer (IOF) Development Program - Co-Learning Seminar 	15 students