

Tokyo Medical and Dental University

PhD Program in  
Data Life Science Global Leader Program  
(5 year Master's and Doctoral Program)  
Admission Guide 2024

For Self-Supporting International Students

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# 1. Introduction

**Program Objectives :** Tokyo Medical and Dental University (TMDU) Data Life Science Global Leader Program (TMDU-DLSP) equips young life scientists, educators and administrative officers from countries around the world with advanced knowledge and skills of multi-disciplines, from basic life sciences and bioengineering to clinical medicine and implementation medical science, to excel as global, multifaceted leaders in data life science.

## 2. Academic policies

### Outline of the Data Life Science Global Leader Program

Recent advances of the Digital Revolution (also known as the third Industrial Revolution) have enabled us to utilize “big data” in all scientific and social fields. In biological and medical sciences, analyses of very complex systems such as immune system, epigenomics, lifestyle diseases and aggravation of infectious diseases have become possible. At the same time, the importance of techniques and methodology for data acquisition has also been increasing. As data life science is expanding so rapidly, professionals and leaders who have research capability and practical knowledge and skills in these fields are urgently needed.

TMDU has been active in developing educational programs for data life science specialists. TMDU has founded new programs in April 2018, to focus on “data science medicine”. In 2017, the university’s proposal of human resource development program for data scientists was selected by the Ministry of Education, Culture, Sports, Science and Technology, Japan. This program provides cutting-edge education on biomedical information such as genomics / omics medicine, large scale biobank, IoT medical care, and data science medicine. Furthermore, in April 2018, TMDU founded a new PhD program in preemptive data science medicine in the Graduate School of Medical and Dental Sciences including both the master's program and doctoral program. The curriculums are prepared originally by TMDU faculties. Further, M&D Data Science Center was founded in April 2020 to expand these activities.

In order to equip young professionals to become leaders in advancing data science medicine, the Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, founded the TMDU-DLSP, a new international PhD program.

### Features

The features of this TMDU program are: (1) comprehensive educational program by integrating information science, data science, life science, clinical medicine, and implementation science utilizing rich educational and research resources in bioinformatics and clinical informatics in TMDU, (2) research and education considering equitable delivery of advanced healthcare technology for the promotion of health of the people around the world based on activities in TMDU overseas collaborating institutions, and (3) combination of education and research programs with international collaborating institutions to develop innovative solutions to overcome global health problems. The program will lead to form an international network of

human resources who are responsible for new data life science, suitable for medical needs and medical environments around the world, technological development, and implementation environment.

The TMDU-DLSP is a rigorous and flexible program. Japan has the highest level of bioscience and medicine in the world, with the quality of advancement in bioscience and biotechnology, and Tokyo Medical and Dental University has been consistently ranked by Times Higher Education (THE) World University Ranking and Quacquarelli Symonds (QS) World University Ranking as one of the top five medical schools in Japan. The students will be exposed to an environment with high standards of research. At the same time, the students will be given opportunities to study across disciplines from bioscience and biotechnology to data science while developing their own specialty.

Furthermore, students are able to have advisors from other disciplines such as chemistry, pharmaceutical science and information science, and to participate in various educational programs outside the classroom.

## List of Supervisors

Supervisor	Field	Contact Address	Research Projects
Katsumori Segawa (Professor)	Biochemistry & Molecular Genetics	segawa.mche@tmd.ac.jp	1. Mechanisms of membrane lipid homeostasis 2. Physiology and pathophysiology of diseases caused by dysregulated membrane lipid homeostasis□
Satoshi Uchida (Professor)	Advanced Nanomedical Engineering	uchida.anme@tmd.ac.jp	1. mRNA vaccine 2. mRNA therapeutics 3. Drug delivery system 4. mRNA engineering
Masakazu Kawashita (Professor)	Inorganic Biomaterials	kawashita.bcr@tmd.ac.jp	1. Biomaterials for cancer treatment or bone repair 2. Osteoconduction mechanism of hydroxyapatite 3. Phosphate-based layered biomaterials 4. Antibacterial biomaterials for bone regeneration and infection prevention
Taishi Yokoi (Associate professor)	Ceramic Biomaterials	yokoi.taishi.bcr@tmd.ac.jp	1. Development of layered calcium phosphate-based materials for hard tissue regeneration 2. Development of ultra-high toughness ceramic artificial bones 3. Design of ceramic devices that achieve both treatment and diagnosis
Akira Matsumoto (Professor) □	Polymer engineering and drug delivery systems	matsumoto.bsr@tmd.ac.jp	1. Transdermal drug delivery systems 2. Boronic acids-based molecular-recognition chemistry 3. Stimulus-cleavable chemistry and its biomedical applications

Hirokazu Kaji (Professor)	Diagnostic and Therapeutic Systems Engineering	kaji.bmc@tmd.ac.jp	1. Drug delivery system 2. Cell delivery system 3. Micropysiological system
Masashi Ikeuchi (Professor)	Biomedical Microfabrication, Microdevice and System Integration	ikeuchi.mech@tmd.ac.jp	1. 3D Microfabrication of Biomaterials 2. Microdevice for Regenerative Medicine and Assisted Reproductive Medicine 3. Integrated Microsystem for Biomedical Mass Processing
Hirokazu Tamamura (Professor)	Medicinal Chemistry	tamamura.mr@tmd.ac.jp	1. Medicinal chemistry based on peptides and peptidomimetics 2. Basic research for development of drug candidates for cancer, HIV infection/AIDS, Alzheimer's disease, etc.

### 3. Fields of study and number of students to be accepted

- (1) TMDU- DLSP offers a two-year Master's Degree in Science or in Engineering and a three-year Doctor of Philosophy in Science or in Engineering.
- (2) Number of students to be accepted for 2024: a few

### 4. Qualifications

- (1) Nationality: The applicants must not be Japanese citizens.
- (2) Academic Background:

#### **Master's program**

(a) Applicant has received or expects to receive an academic degree equal to a bachelor's degree in foreign university or other institute (limited to the facilities which the MEXT minister appoints as a facility which received the evaluation about the general situation such as the education research activities or a facility which follows it by the person who received the certification of the foreign government or the related organization ) by completing courses that are 3 years or more in length (include completing the courses in Japan by completing

correspondence classes offered by schools in that country and the course of study of a foreign educational facility that is designated under the foreign country's educational system ) by September 2024

(b). Applicant's ability must be recognized by Tokyo Medical and Dental University Graduate School as equal to or higher than that of a bachelor degree holder.

**Ph.D. program:**

(a) Applicants must have a minimum of 18 years of education or will complete such education by the end of September 2024.

(b). Applicant's ability must be recognized by Tokyo Medical and Dental University Graduate School as equal to or higher than that of a master degree holder.

(3) Health: Applicants must be in good health without any difficulty in academic work.

(4) Language Ability: Applicants must have sufficient knowledge and skills in English.

(5) Applicants who are not in Japan at the time of application must arrive in Japan by September 30<sup>th</sup>, 2024.

(\*1) Acceptance will be cancelled if an applicant fails to arrive in Japan by the designated date.

(\*2) Acceptance will be cancelled if an applicant in a bachelor's or master's program at the time of application apply to the master's or doctoral program, respectively, but fails to complete his/her program by September 30<sup>th</sup>, 2024.

## **5. Tuition and other costs** (estimated, for the fiscal year 2023)

(1) Fee for the entrance examination: JPY36,000.-

(2) Fee for matriculation: JPY282,000.-

(3) Tuition: JPY535,800.-

\*Please note that these fees may change.

## **6. Selection**

Successful applicants will be selected based on their application documents and the interview (direct or over the Internet) with our professors.

Admission will be notified to the applicant around the end of June. The status of enrollment at TMDU is that of a regular graduate student.

## **7. Features of TMDU-DLSP**

(1) Students engage in study and research using English

(2) Applicants are allowed to take the entrance examination in their countries of residence

(3) Once students gain required credits at master's and Ph.D. programs, submit a dissertation on their research work, and pass a final examination, students will be

awarded a Master's degree (Science or Engineering) and Ph.D. degree (Science or Engineering).

## 8. Application Procedure

The applicant must first obtain approval for application from the prospective supervisor. The potential supervisors are listed on pages 4 and 5.

All of the following documents should be sent by email to the following address between April 8, 2024 and April 26<sup>th</sup>, 2024 (If it is difficult to submit in electronic format, please consult in advance):

International Student Support Unit  
Institute of Global Affairs  
Tokyo Medical and Dental University  
1-5-45, Yushima, Bunkyo-ku,  
Tokyo 113-8510, Japan  
TEL +81-3-5803-4076/4077 FAX: +81-3-5803-0105  
E-mail: [fssu@ml.tmd.ac.jp](mailto:fssu@ml.tmd.ac.jp)

- (1) Application form
- (2) Field of Study and Research Plan
- (3) Recommendation Letter: A letter of reference from a head of the institution the applicant belongs to and another reference is desirable from a supervisor who knows the applicant personally. All recommendation letters should be addressed to the President of Tokyo Medical and Dental University.
- (4) For those who reside outside Japan: Certificate of family register, birth certificate or citizenship in their home country (if applicable).  
For those who are already in Japan: Resident card (color copy of both sides)
- (5) Official academic transcripts from university and graduate school attended.
- (6) Certificates of graduation (or prospective graduation) from university. Certificate of completion (or prospective completion) of graduate course or degree (if applicable).
- (7) For those who apply to the PhD program: Thesis by which the applicant obtained his/her master's degree or its equivalent (in English) (if applicable).  
If the applicant attended a master's program which does not require the master's thesis, please state so and submit its equivalent, if any.
- (8) Training and supervision plan (prepared and submitted by the supervisor)
- (9) A photocopy of your passport:
- (10) Fee for the entrance examination: JPY36,000.- (estimated, based on fiscal year 2023's amount) Concerning the how to pay the entrance exam fee, please contact the Foreign Student Support Unit by email at [[fssu@ml.tmd.ac.jp](mailto:fssu@ml.tmd.ac.jp)].
- (11) A document to certify English proficiency, such as a TOEFL score, if an applicant is not a native in English.



**Caution: Applicants need to take contact with the prospective supervisor before sending application documents**

If a false statement has been made on application documents enrollment will be cancelled even after admission.

## **9. Enrollment Term**

October 1<sup>st</sup>, 2024

## **10. Notes on Document Application**

- (1) As a training and supervision plan is required, it is essential to communicate in advance with the supervisor, have research meetings, and obtain the necessary documents.
- (2) Application documents should be prepared uniformly in A4 size using document creation software, either in Japanese or English. For certificates in languages other than Japanese or English, attach a translated version in English.
- (3) Among the submitted documents, items (1) and (2) above should use the format provided by TMDU.
- (4) Incomplete or inaccurate information in the submitted documents, missing supplementary documents, or submissions past the deadline will not be accepted.
- (5) Submitted documents will not be returned.

## **11. Supplementary information**

- (1) Tuition may be exempted based on student's academic performance and financial status.
- (2) Students are encouraged to apply for scholarships.

## **12. Notes**

- (1) Before applying, applicants should thoroughly discuss in advance with the supervisor on the handling of situations such as changes in enrollment period (including whether to proceed to the doctoral program or not) or if the supervising instructor becomes unavailable due to transfers, etc.
- (2) If there is any false information in the submitted documents, the admission permission may be revoked even after enrollment.
- (3) Students are advised to have some knowledge of Japanese culture and, education in general before coming to Japan. Studying and research are conducted in English, but students are encouraged to learn Japanese.

## 13. Contact Information

If you have questions about your application, please ask by e-mail.

E-mail: [fssu@ml.tmd.ac.jp](mailto:fssu@ml.tmd.ac.jp)

International Student Support Unit  
Institute of Global Affairs  
Tokyo Medical and Dental University  
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