

Tokyo Medical and Dental University

Biomedical Science and Engineering Track (BST)

TMDU Data Science Medicine Global Leader  
Program (DS-GLP)

Admission Guide 2020

For Self-Supporting International Students

## Table of Contents

1. Introduction
2. Academic Policies
  - Outline of the Biomedical Sciences and Engineering Track
  - List of Supervisors
3. Fields of Study and Number of Students to Be Accepted
4. Qualifications
5. Tuition and Other Costs
6. Application Procedure
7. Features of DS-GLP
8. Selection
9. Enrollment Term
10. Supplementary Information
11. Contact Information

## **Introduction**

### **Dear Applicant:**

Thank you for considering Tokyo Medical and Dental University for your graduate study. Our master's and Ph.D. programs are highly ranked and are comprised of a full spectrum of biomedical study for both academic and professional carriers. In 2007 Tokyo Medical and Dental University has started a new International Graduate Program for Biomedical Science to offer more opportunities for international students to study in this area. In 2014 and 2018, this program was reformed. In this program, all courses are lectured in English. Tokyo Medical and Dental University gratefully accepts motivated applicants and promotes the diversity of the graduate school.

We offer you our best wishes for your successful application to the Program.

## **2. Academic policies**

### **Outline of the Biomedical Sciences and Engineering Track (BST)**

Although the Biomedical Sciences and Engineering Track (BST) constitutes one of the two tracks of Data Science Medicine Global Leader Program (DS-GLP), the BST covers broad fields in biomedical sciences and engineering. Recent development in bioscience, bioinformatics and biotechnology made important advancements in medicine by allowing us to study genomic information on disease susceptibility, molecular mechanisms on disease development, and development of new therapies through drug discovery and regenerative medicine. Effective management of health issues urgently requires nurturing professionals and leaders who have research capability and practical knowledge and skills in biomedical sciences and engineering.

The DS-GLP 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
Hiroshi Nishina (Professor)	Developmental and Regenerative Biology	nishina.dbio@mri.tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Signaling pathways that regulate organ formation</li> <li>2. Signaling pathways that regulate vertebrate early embryogenesis</li> </ol>
Nobutoshi Ito (Professor)	Structural Biology	<a href="mailto:ito.str@tmd.ac.jp">ito.str@tmd.ac.jp</a>	<ol style="list-style-type: none"> <li>1. Structure analysis by protein crystallography for disease-related proteins, including immune-system, nuclear receptors, and autophagy-related proteins.</li> <li>2. Thermodynamic analysis of protein-protein interactions.</li> </ol>
Kohji Mitsubayashi (Professor)	Biomedical Devices and Instrumentation	m.bdi@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Soft contact-lens and Mouth guard biosensors for BLE telemetry</li> <li>2. Bio-sniffers and Sniff-camera for diagnosis with breath &amp; body odor</li> <li>3. Real-time immune-sensors with re-generable protein for medical testing &amp; residential allergies</li> <li>4. 'Organic engine' based on chemo-mech. energy conversion for artificial pancreas</li> </ol>
Hiroyuki Kagechika (Professor)	Organic and Medicinal Chemistry	kage.chem@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Medicinal Chemistry of Retinoid and Nuclear Receptors</li> <li>2. Development of Novel Modulators of Gene Transcription or Signaling Pathway for Clinical Application toward Intractable Diseases</li> <li>3. Development of Functional Fluorescent Molecules for Elucidation of Cellular Signaling Pathway</li> </ol>
Hirokazu Tamamura (Professor)	Medicinal Chemistry and Organic Chemistry	tamamura.mr@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Medicinal chemistry of small drugs: antagonists and inhibitors</li> <li>2. Organic chemistry of peptides and peptidomimetics</li> <li>3. Development of mid-size drugs</li> <li>4. Chemical biology for bioprobes</li> </ol>

Akio Kishida (Professor)	Material-based Medical Engineering	kishida.mbme@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Materials and engineering for tissue engineering and regenerative medicine</li> <li>2. Novel biomaterials based on interface science</li> <li>3. Basic study for biocompatibility</li> </ol>
Yoshikazu Nakajima (Professor)	Biomedical information	nakajima.bmi@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Artificial intelligence (AI) analysis of medical information</li> <li>2. High-dimensional and multi-disciplinary medical imaging</li> <li>3. The design of medical Internet-of-Things (IoT) network</li> <li>4. Intuitive medical data visualization</li> <li>4. Computer integrated surgery (surgical navigation and robotics)</li> </ol>
Masahito Matsumoto (Associate Professor)	Advanced Bio-molecular Design	mmatsumoto.bif@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Development of mRNA therapeutics</li> <li>2. Technology on cell fate determination</li> <li>3. Molecular biology associated with applications of mRNA therapeutics</li> <li>4. Molecular design for advanced nucleic acid medicine</li> </ol>
Taishi Yokoi (Associate Professor)	Ceramic Biomaterials	yokoi.taishi.bcr@tmd.ac.jp	<ol style="list-style-type: none"> <li>1. Development of novel bone repairing materials</li> <li>2. Development of ceramic materials for cancer therapy</li> <li>3. Basic study for biomineralization</li> </ol>

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

- (1) Tokyo Medical and Dental University offers both Master's and Ph.D. programs in the fields of Biomedical Science and Technology (BST).
- (2) Number of students to be accepted for 2020: a few

### 4. Qualifications

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

### **Master's program**

- (a) Applicants must have a minimum of 16 years of education or will complete such education by the end of September 2020.
- (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.

### **Ph.D. program:**

- (a) Applicants must have a minimum of 18 years of education or will complete such education by the end of September 2020.
- (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 from September 20<sup>th</sup> to October 1<sup>st</sup>, 2020.
- (\*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>, 2020.

## **5. Tuition and other costs** (estimated, for the fiscal year 2019)

- (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. Application Procedure**

The applicant must first obtain approval for application from the prospective supervisor. The potential supervisors are listed on page 3 and 4.

All of the following documents should be sent by email and also by express mail in a single package to the following address by April 9<sup>th</sup>, 2020:

Foreign 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 (digital file and a paper version printed on both sides) The form is available at the website shown below.  
[http://www.tmd.ac.jp/international/center/International\\_Student\\_Scholarship/index.html](http://www.tmd.ac.jp/international/center/International_Student_Scholarship/index.html)
- (2) Field of Study and Research Plan (digital file and a paper version printed on both sides). The form is available at the website shown below.  
[http://www.tmd.ac.jp/international/center/International\\_Student\\_Scholarship/index.html](http://www.tmd.ac.jp/international/center/International_Student_Scholarship/index.html)
- (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 or citizenship in their home country (if applicable).  
For those who are already in Japan: Photocopy of resident card
- (5) Official academic transcripts from university and/or 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 by the supervisor)
- (9) A photocopy of your passport:
- (10) Fee for the entrance examination: JPY36,000.- (estimated, based on fiscal year 2019'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.

- Application Filing Period

April 1<sup>st</sup>, 2020 to April 9<sup>th</sup>, 2020

- Acceptance of Admission

The results will be posted to all applicants by the middle of June.

## **7. Features of DS-GLP**

- (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. Selection**

Successful applicants will be selected based on their application documents and the interview (direct or over the Internet) with our professors. Applicants are informed of the details of interview by email at the beginning of June.

## **9. Enrollment Term**

October 1<sup>st</sup>, 2020

## **10. Supplementary information**

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

## **11. 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)

Foreign 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