Tokyo Metropolitan University

Undergraduate Course of Biological Sciences

Full undergraduate biology program taught entirely in English for April 2018 Admission

首都大学東京
TOKYO METROPOLITAN UNIVERSITY

Introduction

Started from April 2015

Full undergraduate curriculum taught entirely in English

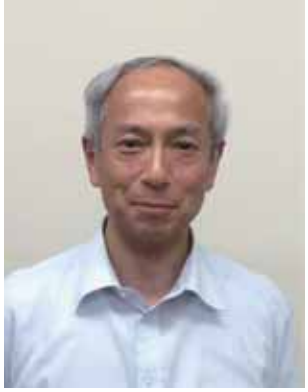
TMU Biological Sciences Department offers a full undergraduate biology course taught entirely in English started from April 2015. You do not have to be able to speak or write Japanese to complete this course. All the lectures and seminars are provided in both English and Japanese. Credits obtained by taking lectures provided in Japanese can also be used to fulfill requirements for graduation.

Biology courses include taxonomy, ecology, physiology, genetics, developmental biology, cell biology, molecular biology, and biochemistry. The subjects of these lectures include organisms ranging from microorganisms, plants and animals. A variety of humanities courses are also provided in English.

Unique courses are provided to promote creative thinking. Students are also encouraged to participate in undergraduate research programs in their freshman and sophomore years. This program allows the students to gain first-hand experience in biological research of their choice on their own initiative.

We expect this course to be around 20 students large each year, and contain international students and Japanese students who have studied overseas or are fluent in English.

Becoming a Better Researcher!



Department Chair:
Prof. Jun-ichi Kato

In our department, we aim to study a wide range of fields of basic biology. Advances in these fields are extremely rapid and results from the fields quickly make way into practical application in medical sciences, agriculture and environmental sciences. Under this circumstance, call for personnel with firm understanding of basic science and excellent research capability is higher than ever. Application of the results from basic science requires a wide range of knowledge, good experimental technique and an innovation mindset. In order to nurture these abilities, we have designed our curriculum to cover a wide range of life forms, from microbes to plants and animals. With our curriculum, each student will study these life forms from the molecular to cellular/individual level, and also the environment and the ecosystems they inhabit. We aim to nurture independent thinking through Independent Research program and also emphasize the importance of communicative skills.

TMU ranks 9th among Japanese Universities in the Times Higher Education World University Rankings 2016-2017

Tokyo Metropolitan University ranks401-500th in the Times Higher Education World University Rankings 2016-2017. The ranking among Japanese Universities is 9th. The Times Ranking, which is based on indicators in teaching, research, citations, industry income, and International outlook, demonstrates that our university is highly-valued internationally.

A View of Our Classroom

Laboratory Course in General Biology

Introductory courses designed to help you choose your research field.

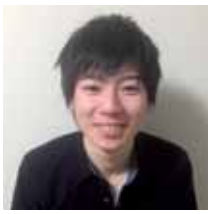
Field Practice of Plant Taxonomy

Experience field work with professional researchers.

Independent Research Course in Biology

Let's turn your questions into valid scientific research.

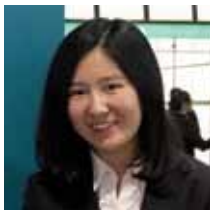
Come to Study with Us



Masaki Kawanobe

3rd year student
English Course of Biological Sciences

"I decided to join English course because I think I want to go abroad to study or to do some activities when I become a university student. Then, I thought though I'm in Japan I can enhance English skill in this English course.
Foreign students can attend a part of English biological curriculum. So, I take some classes with foreign students. Foreign students are enthusiastic to attend a class. They immediately tell their thinking or questions. So, I get to tell my thinking or suggestion because the mood makes me enthusiastic."



Kurumi Shimonaka

3rd year student
English Course of Biological Sciences

"Why I chose this English course is I'm interested in Biology and also in English.
And I think Studying Biology in English will be more important in the future. It is necessary to be able to tell our own opinions in English when we grow up.
I got used to speaking and listening English, off course. And I became more positive. I can tell or perform anything without hesitation. This is because speaking in English needs a kind of step to show our ideas with many actions."

After Graduation

After Finishing Undergraduate School

On average, 70%～90% of our alumni proceed to a master' s degree.
Other students find employment in public and private sectors. The following is an excerpt from the list of career path of our alumni.

- Private sectors
Food and Beverage Industry, Biochemical and Pharmaceutical Industry, Manufacturing Industry, and Learning Support Organizations

- Public Sectors
Ministry of Environment, Forestry Agency

After Finishing Master's Program

After obtaining a master's degree, many students proceed to the doctoral program while others find employment. Many students stay in our department for their Ph.D degree, while other students join Ph.D programs in other universities such as The University of Tokyo and University of Lausanne.

Career paths of International students

Some of our previous international student alumni returned to their own countries and have found positions in local universities. Other students have remained in Japan and started their own venture companies. With our new English course, we expect that career paths of our international students' alumni will broaden. Studying biology in English should increase chances for the alumni to find Biology-related jobs in multinational organizations and public sectors.

Features of Our Curriculum

Our curriculum is highly experience-oriented, so almost half of our program is allocated to experiments and practical training inside and outside the laboratory.

Through the curriculum, we aim to nurture "Skills and knowledge for studying nature", which is highly beneficial even when applied to activities outside research. Practical training and research in marine spots and fields are also conducted mainly during the summer.

Independent Research for freshman program, which starts in the first year, most strongly reflects the special features of our curriculum. Unlike the Graduate Research in the senior year, the topic of research is not limited to topics studied in your professors' lab.

Students learn how to turn their own ideas and interest into a valid research question. Students learn to organize research groups, plan how the research should be carried out, conduct the actual research and present their achievements, with assistance of academic advisors.

Through this program, we encourage students to gain first-hand experience in biological research and to learn the fundamental skills required to study and understand natural organisms.

Interactive Education in a Small Class

The size of the English course class will be around 20 students each year.
We will take advantage of the small class size and will conduct our lecture in a interactive manner.

Studying in English (or in Both Languages)

Students can take all 124 credits required for graduation in English. This includes the coursework necessary for graduation.

All seminars and lectures are provided in both English and Japanese. The choice of language can be based on the students' interest and language skill. Students can switch from one language to another from a new semester.

Advantages of a Cross-Cultural Classroom

Studying in our classroom will be a cross-cultural experience.
We have learned from experience that studying with your peers who have different views, ideas and opinions is the best way to study any subject matter.
Our professors will assist students of both languages to overcome the lingual difficulties and cultural differences.

What We Look For

- Applicants who are very interested in biology and aspire to gain a profound knowledge of living organisms.
- Applicants who are very interested in experiments, observations, and research.
- Applicants who have mastered the basics of English, chemistry, physics, and mathematics.

Syllabus & Course

The following is an example of the lectures and seminars that will be provided in English.
A variety of humanities courses will also be provided in English and can be included in the 124 credits required for graduation.

Model Curriculum

Year 1	Year 2
Basic subjects: Freshman seminar / Information Literacy / English	
General Subjects: Human Biology and other biological subjects, Japanese Language and other humanity subjects	
Laboratory Course in Elementary Biology	Laboratory Course in General Biology
General Biology / General Taxonomy / General Physiology / General Genetics / General Biochemistry	General Developmental Biology / General Ecology / Genetics / Cell Biology / Biochemistry / Neuroscience / Evolutionary Biology / Developmental Biology / Special lecture in Biology
Independent Research Course in Biology	Independent Research Course in Biology
Year 3	**Year 4**
Biochemistry / Molecular Biology / Cell Biology / Genome Science / Biodiversity / Special Lecture in Biology	Graduate Research in Biology
Laboratory Course in Taxonomy / Laboratory Course in Evolutionary Biology / Laboratory Course in Genetics / Laboratory Course in Molecular Biology / Laboratory Course in Physiology / Laboratory Course in Neuroscience / Laboratory Course in Biochemistry / Laboratory Course in Cell Biology / Laboratory Course in Developmental Biology / Laboratory Course in Ecology	
Field Practice of Plant Taxonomy / Field Practice of Animal Taxonomy / Field Work in Ecology / Marine Biology Course (General Biology) / Marine Biology Course (Physiology & Developmental Biology) / Internship in Biology	Special lecture in Biology / Laboratory Course for Radio Isotope in Biology

Syllabus Example

Subject : General physiology

Kanae Ando, Wednesday 14:40-16:10 I390

Course description:

Multicellular organisms integrate various events in the body at the molecular, cellular, organ, and system levels to sustain life. This course will provide students a conceptual framework for understanding how their bodies work and for dealing with issues relevant to human health in the modern world. By application of biological concepts to familial experiences, this course will help students to see excitement of science and its importance in their lives.

Course objectives and goals :

At the end of this course, students will be able to describe

(1) basic concept of homeostasis, (2) the fundamental concepts of human anatomy and how the body parts work together, and (3) organization of plant body and how internal and external factors regulate their life.

Course format and materials :

Didactic lectures.

Required textbook: Campbell, Biology, A Global Approach, 10th edition (PearsonISBN 978-1292008653)

Recommended textbook: Mader, Human Biology 14th edition (McGraw-Hill, ISBN 978-1-259-25200-6), Levetin E, and McMahon K, Plants and Society (McGraw-Hill, ISBN 9780073524221). Other materials for in-class discussions may be distributed.

Grade :

Class participation 30%, Mid-term exam 35%, Final exam 35%

15 lectures / semester

1	Introduction, Organization and Regulation of Body Systems	9	Cardiovascular System: Heart and Blood Vessels
2	Homeostasis and Endocrine System	10	Cardiovascular System: Blood
3	Skeletal system	11	The Lymphatic and Immune Systems
4	Muscular Systems	12	Immune Systems (cont.)
5	The Plant Cell and Body	13	Respiratory System
6	Life Cycle of Plants	14	Urinary System
7	Digestive system	15	Review and final exam
8	Review and Mid-term exam		

New Professors

Prof. Adam L Cronin

1995-1998
Flinders University, Australia
2000-2002
Post doc at Hokkaido University
2002-2003
Post doc University College London
2008-2010
Research Fellow at Universite Pierre et Marie Curie
2011-2014
Research Fellow / Lecturer at Iwate University

"I am originally from Australia but have had the opportunity to work all over the world, and with people of all different cultures, through conducting scientific research.
My research concerns how social organisms function. I study how living in groups allows species to achieve things that individuals cannot alone, and how different social systems can allow species to survive in different environments.
English capability is essential in modern science, and TMU is very lucky to have this degree program entirely in English. I hope you take advantage of it to provide yourself with the best possible basis for your future career."

Prof. Kanae Ando

1996-2001
Graduate school of the University of Tokyo, Pharmaceutical Sciences
2001-2006
Postdoctoral fellow at Cold Spring Harbor Laboratory
2006-2014
Assistant Professor at Thomas Jefferson University

"Are you amazed by the beauty of living creatures and eager to understand them? TMU biological science course provides you the instruction, research experience, and mentoring to help your expedition to discover how life works. Come on board with us to a fascinating journey into biology!
My research goals are to understand the molecular basis of brain functions and to provide fundamental insights into eventual cures for neurological diseases."

Characteristics of Our Teaching Staff

Our teaching staffs are highly experienced in teaching and conducting research in English. Many have studied and/or worked in non-Japanese laboratories.
Therefore, we are fully capable of providing our course in both Japanese and English.
We have also enlarged our staff. A native English-speaking staff and a Japanese staff who has a long experience teaching biology in United States have joined our department in 2014.

Professors & Research Fields

Toshiro Aigaki	Genetics, Molecular Biology, Genome Science
Takashi Okamoto	Plant Developmental Biology, Molecular Cell Biology of Plants
Naoki Kachi	Plant Ecology, Preservation Ecology, Island Ecosystem
Junichi Kato	Molecular Genetics, Bacterial Genome, Bacterial Cell-growth
Akeo Kadota	Plant Physiology, Plant Photoresponse, Cytoskeleton
Hiroyuki Kawahara	Cell Biology, Biochemistry, Cell Growth and Differentiation
Koichiro Tamura	Evolutionary Genetics, Genome Science, Bioinformatics
Satoshi Hanada	Photosynthetic Microbial Consortia, Bacterial Taxonomy, Environmental Microbiology
Fumio Hayashi	Animal Ecology, Animal Behavior, Evolutionary Ecology
Shinichi Hisanaga	Neurobiochemistry, Cell Biology, Signal Transduction
Katsumi Matsuura	Environmental Microbiology, Microbial Ecology, Photosynthesis
Noriaki Murakami	Plant Systematics, Evolutionary Biology, Plant Speciation
Katsuyuki Eguchi	Animal Taxonomy, Taxonomy of Ants, Biogeography
Shigeki Ehira	Molecular Genetics, Molecular Physiology, Microbial Genome Science
Yoko Kakugawa	Plant Systematics, Evolutionary Biology, Plant Speciation
Takeshi Kanegae	Molecular Cell Biology of Plants, Response to Light Environment
Makoto Kurokawa	Neurobiology, Nervous Control of Behavior
Takaomi Sakai	Neurogenetics, Molecular Genetics of Learning and Memory
Takashi Sugawara	Plant Systematics, Ecology of Flowers
Junichiro Suzuki	Plant Ecology, Population Ecology, Community Ecology
Naohito Takatori	Developmental Biology, Cell Polarity, Separation of Germ Layer Fates
Aya Takahashi	Evolutionary Genetics, Speciation, Population Genetics
Marcus Tank	Photosynthetic Microbial Consortia, Microbial Ecology, Prokaryotic Taxonomy and Physiology
Vera Thiel	Photosynthetic Microbial Consortia, Microbial Ecology, Microbial Taxonomy
Shin Haruta	Environmental Microbiology, Microbial Ecosystem, Applied Microbiology
Kimiko Fukuda	Developmental Biology, Molecular Mechanisms of Gastrointestinal Tract Development

Admission & Tuition

For details contact Admissions Office by E-mail : admission-tmu@jmj.tmu.ac.jp

Admission for April 2018

Applicants who do not understand Japanese can take the entrance examination in English.
The total number of students in the biology course will be 60, including the students in the English course (Around 20).
English course students can also take the lectures and seminars in Japanese.

Special examinations in English

We will offer the special examinations in English for Japanese and non-Japanese students depending on their educational background.
The first stage of selection will be based on the documents (1) or (2), and at the second stage of selection, the interview will be conducted.

(1)Examination for Japanese students

Two options will be offered at first stage of selection.

・SAT/ACT Method

Based on SAT reasoning score or ACT(+Optional Writing Test)score plus TOEFL or IELTS academic module score.

・IB Method

Based on the score of the International Baccalaureate final examination.

(2)Examinations for non-Japanese students

The examination will be offered twice a year in autumn and winter.

< Autumn >

Based on SAT reasoning score or ACT(+Optional Writing Test)score plus TOEFL or IELTS academic module score

< Winter >

Based on the EJU* score. Required subjects are mathematics (course 2) and sciences (two of physics, chemistry, or biology) in English.
In addition, taking examinations of essay and mathematics at TMU are required. Academic module score of TOEFL or IELTS should also be submitted.

* EJU: Examination for Japanese University Admission for International Students

Examinations in Japanese

Applicants can also take other examinations in Japanese. For details, please refer to the University website.

Special Examinations in English

Category	1st stage of selection	2nd stage of selection
Japanese students	**＜SAT/ACT Method＞** ・SAT Reasoning Test score or ACT (+ Optional Writing Test) score ・TOEFL or IELTS academic module score ・Essay form (Statement of Purpose (Motivations)) **＜IB Method＞** ・International Baccalaureate final examination score (Estimated score is also applicable.) ・Essay form (Statement of Purpose (Motivations))	・Interview (Oral exam included)
non-Japanese students (Autumn)	**＜SAT/ACT Method＞** ・SAT Reasoning Test score or ACT (+ Optional Writing Test) score ・TOEFL or IELTS academic module score ・Essay form (Statement of Purpose (Motivations))	・Interview (Oral exam included) ＊The interview is also available via Skype.
non-Japanese students (Winter)	**＜EJU / Language; English＞** ・Mathematics (course 2) ・Sciences (two of physics, chemistry, or biology)	・Mathematics ・Essay ・TOEFL or IELTS academic module score ・Interview (Oral exam included)

Tuition and Fee (As of April, 2017)

Registration: 282,000 JPY
Tuition: 520,800 JPY

Tuition Reduction

Many of our privately financed international students in the past have been offered tuition reduction.

http://www.biol.se.tmu.ac.jp/global/

Outline of The Course

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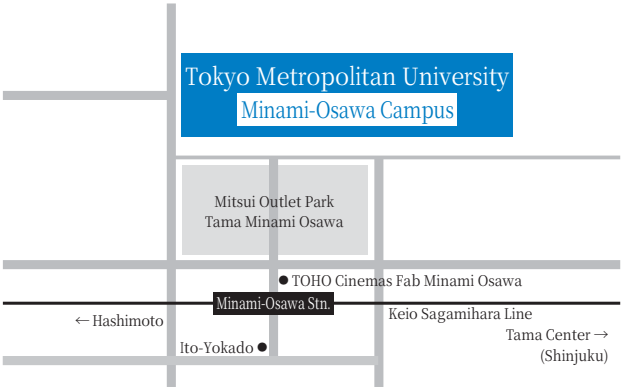

Contact Information

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