



Fostering long-term creativity and innovation with science and technology disciplines based on Ochanomizu spirit "Migakazuba" in the next generation of global leaders

Program for Leading Graduate Schools

Bouquet

Newsletter

Ochanomizu University

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Topic

Realize your dreams with "Migakazuba" spirit!

Program Feature	02
Program activities	03
Activity Report	04
Study Commons members	06
New student interview	07
Information	08



お茶の水女子大学
Ochanomizu University

Realize your dreams with "Migakazuba" spirit!

To develop global human resources to continuously create innovation in industry all over the world

Ochanomizu University was founded in 1875 to become Japan's first institution of higher education for women. Over 140 years since then, the university has consistently focused on women's education promoting their social independence and advancement, thereby bolstering the intellectual foundation of society. The aim of the institution is to support women to realize their earnest dreams.

In line with this long-established objective in the 2015 academic year, we launched a new graduate school program, Fostering Long-Term Creativity and Innovation with Science and Technology Disciplines based on Ochanomizu spirit "Migakazuba" (title of the university's song passed down through generations) in the Next Generation of Global Leaders.

Abilities to be acquired

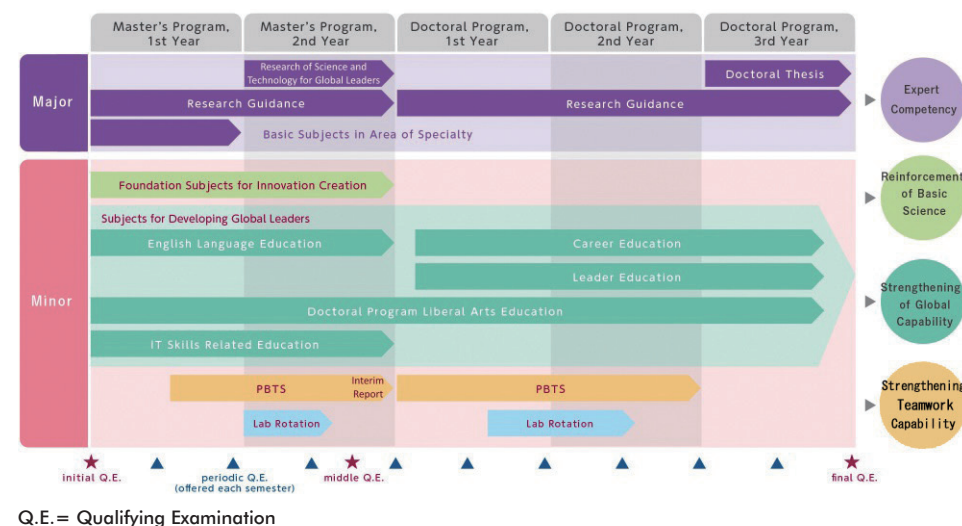
1. Skills to work as top leaders in non-academic fields; business, government, non-profit or other organizations
2. Competency to address social challenges and offer solutions from a broad perspective, combined with highly international and interdisciplinary capabilities
3. Skills to manage innovation projects through strong research competency

Eligibility for application

Eligible applicants for this program are graduate students who are to enroll in the master's course of the Division of Advanced Sciences or the Division of Life Sciences with intention to pursue doctoral studies. Selection exam for this program is held twice a year in February and August.

Program course structure

Participants in the program undertake team study activities offered in the "Minor Course of Science and Technology for Global Leaders" (refers as "Minor" in the table below), while concurrently engaging in specialized research in their "Major course" (refers as "Major" in the table below).



Program activities

► PBTS (Project Based Team Study)

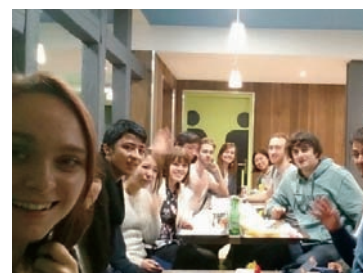
In the PBTS program, students from different speciality organize teams to work on projects. Each project is totally managed by the team students, including selection of project target, plan and implementation of research actions to the target. Each team holds meetings on weekly basis to achieve the target. The style of PBTS is based on actual corporate projects in order to acquire practical research abilities.

Teams of PBTS I in academic year 2015

Anti-aging:	Tea leaf processing: optimizing anti-aging properties of green tea extracts
Education:	Cultivating students' logical thinking through programming
Synchronization:	Pattern analysis of cultured skin fibroblasts
Water purification:	New biological system for treating waste-water contaminated with used cooking oil
Dioxin:	New portable device for dioxin detection



► Global Internship



Global Internship sessions are offered to provide students with opportunities to broaden their view on approaching PBTS targets as well as on increasing international capabilities and English language skills. In academic year 2015, 10 students were sent to renowned universities, corporations and research institutions in and outside Japan (as showed the table below) for a 3 to 6 month period.

Global Internships in academic year 2015

USA	New York University Virginia Polytechnic Institute and State University
UK	University of Oxford
France	University of Strasbourg (2 students)
Australia	University of Technology Sydney, Institute for Sustainable Futures
Japan	National Institute of Health and Nutrition FUJITSU LIMITED Shimane University
Republic of Paraguay	Japanese Association in Pirapo, Himawari-kai (daycare group for the elderly), Pirapo City Hall

► Other events--Joint meetings with other universitie

Students participated in various internal and external meetings held to facilitate interaction among the 62 programs of Leading Graduate Schools across Japan.

Major activities in academic year 2015

Joint meeting of "Waseda, Keio and Ochanomizu Universities' Leading Graduate Schools programs"

Joint PBTS meeting with students from Tokyo Institute of Technology's Program for Leading Graduate Schools

Program for Leading Graduate Schools Forum 2015

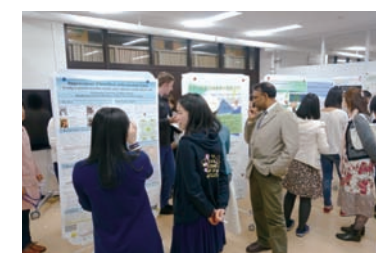
Joint-Leading Women's Association Meeting

Students gave a presentation to the Committee on New Industry and Technology of KEIDANREN

Students participated in the first Business Concept Competition (hosted by Tokyo Institute of Technology) in relation to achievements from PBTS projects.

Origami Workshops (3 sessions)

Presentation on Global Internship Report (3 sessions)



ACTIVITY REPORT

01 PBTS Team report: Synchronization

This project relates to "the effect of collagen on aggregating pattern formed in cultured skin fibroblasts." We are trying to find factors that influence the patterns by analyzing the experimental images of fibroblasts cultured on collagen-coated dishes with different concentrations, and by comparing the experimental data with the simulation results, based on a physical model. We expect that this approach of pattern-affecting factors can be applied to estimating the effect of new cosmetic ingredients on the skin.



02 PBTS Team report: Water Purification

Our research target is to propose a new water treatment system for purifying oil-contaminated wastewater using enzyme. It is known that enzymes can work efficiently for water treatment, but high cost has limited such application on industrial scale. We now contrived a new treatment system to overcome this problem. Two different approaches have been taken towards this goal; one is to check the efficiency of enzymes with real wastewater, and the other is to make survey for the demand, such as possible countries to introduce our system. More practical research work is under planning.



03

Visit to Vietnamese institutions

Friday, October 30, 2015
Hanoi National University of Education (HNUE) and
Institute of Genome Research, Vietnam Academy of
Science and Technology (VAST)

A student visited some of Vietnam's top universities and research institutions located in the center of the vibrant capital city of Hanoi, where the economy is growing rapidly. Among other efforts to promote interaction between Japanese and Vietnamese university students in science and technology, a meeting was held with Vietnamese biology students, who showed interest in studying at Japanese institutions.



Students visiting Institute of Genome Research, VAST

04

Career-planning seminar

Wednesday, December 16, 2015, 12:30-14:00
Inter-Faculty Building 2, Room 102 (1F), Ochanomizu University



Mr. Nobuhiko Kubota, IHI Corporation



Ms. Yuki Ishikawa, Nagatanien Co., Ltd.

A seminar was held with two invited speakers from major companies to provide career planning guidance to females majoring in science, including discussions on the significance of graduate level education.

One presentation was made by Mr. Nobuhiko Kubota, Deputy Director of the Products Development Center, IHI Corporation, who talked about essential qualities of doctoral holders valued by businesses. The other speaker, Ms. Yuki Ishikawa, was an alumna researcher at the Marketing division of Nagatanien Co., Ltd. She described how academic performance acquired during graduate courses of study can contribute to specific industrial business activities.

The two presentations were followed by a lively Q&A session. The seminar proved to be an effective career planning orientation opportunity for our students.

05

2nd Presentation on Global Internship Report 2015

Wednesday, December 16, 2015, 15:00-16:50
Inter-Faculty Building 2, Room 102 (1F), Ochanomizu University

Each of the participants in Global Internship I, offered in the Program for Leading Graduate Schools made a debrief presentation in English on their activities outside our campus. The second debrief session was held on the projects listed below.

Destinations	Research target
Republic of Paraguay Japanese Association in Pirapo, Himawari-kai (daycare group for the elderly), Pirapo City Hall	- Reserch on relationship between the elderly - Nutritional calculation for school meals
FUJITSU LIMITED	Planning of programming education project
University of Strasbourg/France	Exploration of tropical orchids and their potential interest in anti-aging cosmetics
University of Strasbourg/France	Analysis of pesticides in vineyard soil and water

The debrief meeting are open to all students. The next will be the last session for the inaugural year students, which is scheduled for March 2016.



STUDY COMMONS

Study Commons teachers from various countries around the world support students' PBTS research. We introduce some of them and their various specialty in this page.



Minako Kondo, Project Lecturer
Main research field: Chemistry, Molecular Spectroscopy

1. My studying abroad experience:

I did my exchange program and PhD in the University of East Anglia. The university was in Norwich, Norfolk in England. The university is surrounded by nature and there is a lovely pond where I could go for a walk during a break. Norwich is one of the major cities of the East part of England and historically and religiously important city. The beautiful Norwich Cathedral and Castle are the famous symbols of the city and the first things I looked from the coach when

I arrived from London. On the weekend, I loved working the riverside and city centre where you can meet the modern and historical atmosphere.

I still remember that somebody said there was "A church for every week of the year and a pub for the everyday for the year" in Norwich. I cannot count how many pubs I could visit. I really enjoyed the local ales and Sunday roast at those pubs.

2. Interest in science:

My main research field is Molecular Chemistry. I loved science fiction stories and felt chemistry.



Fadoua Ghourabi, Project Lecturer
Main research field: Theorem proving

1. My hometown in Tunisia:

I am from Tunisia in North Africa. Can you find it on the map? Tunisia is small on the map but has a history that spans over 3000 years. Some of my Japanese friends visited world heritage sites, such as the archeological sites from Carthage and Roman era. Since

2011, Tunisia has been trying hard to build a democracy. In 2015, it had been particularly painful for Tunisians, but we have no choice but to keep optimistic and resilient in the face of uncertainties.

2. Interest in science:

My research interest is computational origami, briefly folding origami with programs. The need for origami folding techniques in industry and science is more important than it might seem. Folding is a natural technique that elegantly scales to a smaller size for packing or transporting. For instance, observe how a fetus folds inside the womb, how a bud unfolds into a flower... Nature, thus, inspires technology to design efficient solutions.



Julien Tripette, Project Associate Professor
Main research field: Health promotion

1. My hometown in France:

I was born in the metropolis of Paris and moved to Lyon when I was 12. I also lived in Guadeloupe, in the West Indies. Guadeloupe is a former French colony. During the 17th century, the French took possession of the island. Many people were brought from Africa in order to cultivate the land as slave. In the 19th century, coolies from the Indian subcontinent came to do the fieldwork with contracts. France has a multiethnic society, but it was the first time for me to

be on the minority side. During my PhD period in Guadeloupe, the biggest challenge every day was to finish my experiments as early as possible so that I could go surfing before sunset. Still, I managed to publish 18 articles in ISI-indexed journals out of this 3-year PhD period.

2. Interest in science:

I started doing research quite accidentally. I indeed quitted the university after my first year of Master's degree. I wanted to allocate more time for my hobbies, but I progressively realized that I missed the life on campus, getting new knowledge, meeting people from different countries... I resumed my studies the following year and got interested in human physiology. I feel glad to work as an academic. This gave me the opportunity to live and work in different countries like China, Senegal and Canada and visit many others for conferences. Since I arrived in Japan, I started to focus on health promotion, more especially on new ICT solutions able to promote physical activity. My first experiments were supported by Nintendo. During my childhood in Paris, I frequently played video games on my Famikon, but I could never have imagined that I would work for Mario someday.



- ① My major
- ② My interest in this program
- ③ My future plan

Reona Nagafuchi

Course: Computer Science
Hometown: Fukuoka prefecture
Hobby: Visiting cafes



① My major is Human Computer Interaction (HCI) and Ubiquitous Computing System, which is the study to connect human and computers. I have been studying developing the convenience and user-friendly ways of smartphones and personal computers. ② In this program, I am belonging to a group of students who study in all different fields. We have chosen one theme to work in project PBTS. It is interesting to know what is very common in my field was sometimes new to the other students or was recognized as a new idea. Thus, I expect to bring a good result of project by sharing ideas and cooperating each other. ③ Although the specific idea has not come yet for my future plan, I would like to do my best at the moment for what I can do my research to become more useful to people.

■ Activities Reports

October 31-November 1, 2015	Japan Study Fair in Vietnam (Hanoi, Ho Chi Minh City)
November 1-2, 2015	BIOMOD 2015 (Harvard University/USA)
November 20, 2015	Debriefing session for the returned BIOMOD participants
December 16, 2015	Seminar on Career Planning & Information session for prospective students
December 16, 2015	The 2nd Presentation on Global Internship Report 2015
January 28, 2016	Information session for prospective students



[Entrance exam for the minor course of Science and Technology for Global Leaders, April 2016 semester]

Application: February 3-16, 2016

Selection examination: February 22, 2016

■ Information on offered lecture in 2016

[1st semester](From Apr. 8 to Aug. 1, 2016)

- Essential Mathematics for Global Leaders I
- Essential Chemistry for Global Leaders I
- Essential Computer Science for Global Leaders I
- Essential Bioinformatics for Global Leaders II
- Essential Physics for Global Leaders II
- Essential Culture & Arts for Global Leaders
- Practical Use of Information Technology I

[2nd semester] (From Oct. 1, 2016 to Feb. 2, 2017)

- Essential Physics for Global Leaders I
- Essential Bioinformatics for Global Leaders I
- Essential Engineering & Technology for Global Leaders I
- Essential Chemistry for Global Leaders II
- Essential Ethics for Global Leaders
- Practical Use of Information Technology II

■ Scheduled activities

March 14, 2016	pQE (periodic Qualifying Examination)
February 25-March 31, 2016	mQE (middle Qualifying Examination)
March 29, 2016	The 3rd Presentation on Global Internship Report 2015

Editor's notes

It is almost two years since our program was fully launched. Over this period of time, the faculty members and administration have worked together step by step in this program's fruitious process producing remarkable development of participating students. This is most rewarding to us. The inaugural year students have built appropriate seniority qualities, while the secondary batch of students have acquired effective teamwork skills. We are looking forward to welcoming new students in April joining our program with fresh aspirations in mind.

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