

**TOKYO UNIVERSITY OF AGRICULTURE
AND TECHNOLOGY**

ENGLISH GUIDEBOOK

2015



TAT 国立大学法人
東京農工大学
2014年 東京農工大学は大学創基140年



President
Tadashi Matsunaga

Message from the University President

It is a great pleasure to welcome all to Tokyo University of Agriculture and Technology (TUAT), we are a university with 140 years of history and the first university in Japan to focus on education and research in the fields of agriculture and engineering. We have maintained recognition as a top class institution for leading achievements and capabilities in terms of the ratio of external funding, the amount of funding received per researcher and the number of collaborative research projects secured.

We believe that a key responsibility of a university is to contribute to both the local and global society through the fostering of exceptional human resources. Our commitment to international exchange is evident in our partnerships with over 100 universities worldwide, as we are actively pursue with both Japanese and foreign universities, through which we can expect to experience and share this wealth of new opportunities, in addition to strengthening the friendship between Japan and the global community.

At TUAT, we believe that a safe and sound study environment is important to the educational program itself. We provide a student support network to include regular activities with parents and student surveys undertaken to listen to their needs and expectations. We also believe that listening to our students' voices is important to providing a better education and research environment.

I believe university life is an important part of our life as it is a stepping stone to our career, therefore all youngsters entering university should pursue their dream and enjoy the unique experience of campus life.

It is our sincere desire to build a university with high standards for each and everyone of our student and staff. We hope our successful approach would continue to spread knowledge and lead to further innovation across the globe.

Dr. Tadashi Matsunaga
Professor of Engineering
January 2015

Faculty of Agriculture

Biological Production
Applied Biological Science
Environmental and Natural Resource Sciences
Ecoregion Science
Cooperative Department of Veterinary Medicine

Faculty of Engineering

Biotechnology and Life Science
Applied Chemistry
Organic and Polymer Materials Chemistry
Chemical Engineering
Mechanical Systems Engineering
Applied Physics
Electrical and Electronic Engineering
Computer and Information Sciences

Graduate Schools

Graduate School of Agriculture
Master's Degree

Graduate School of Engineering
Master's Degree
Doctorate Degree
Professional Degree Program

Graduate School of Bio-Applications and
Systems Engineering
Master's Degree
Doctorate Degree

United Graduate School of Agricultural Science
Doctorate Degree

United Graduate School of Veterinary Science
Doctorate Degree

Leading Graduate School of Practical Science
Doctorate Degree

CONTENTS

Face to face with the University President	3
University History Tree	5
Administrative Structure	6
Pioneer Researches	7
Faculty of Agriculture	13
Faculty of Engineering	17
Graduate Schools	23
Leading Graduate School	25
AIMS Program 2014	26
Organization Chart	27
Student Enrollment	29
Campus Maps	31
Things To Do in Tokyo	35
Alumni Voices	37
Global Network and Affiliations	39

University President and Alumni Share Their Perspectives: Charms, Strengths and Human Resource Development of TUAT



Looking back at your university days

President: How does it feel to visit your university after a long time? It must be a feeling of nostalgia, please tell us about your student days back then and about your career presently.

Mr. Fujimori: It was the second year after the Faculty of Textile Science became the Faculty of Engineering; the area around campus was covered with mulberry fields. I have fond memories of being a member of the university Equestrian Club. We were responsible for the management of the horses competing in the Tokyo Olympic Games 1964.

Ms. Sonda: I graduated from Faculty of Agriculture, then entered a pharmaceutical research company as a researcher, and now I work with consulting for medical companies. In my days at laboratory of soil fertilizer science, we did researches with students from Ghana and Indonesia. Back then, I had to use gestures to communicate. It was a very good experience to interact with a variety of people in my university days. After graduation, I realized that fundamentals of agriculture is linked to a variety of fields and that gave me a lot of choices after graduation.

Mr. Fujimori: After finishing undergraduate school, I went to graduate school to learn management engineering and then I joined a manufacturer of packaging materials, who is my current employer. Our company is currently celebrating a milestone of the 100th anniversary; as we are engaged in life science business including packaging materials for food, medical and pharmaceutical purposes, we are also involved in the electronic information business, construction materials business and the development of an analysis system for thrombosis formation. I understand this year also marks the 140th Anniversary for TUAT, congratulations.

Ms. Sonda: The cooperation of industry-government-academia is closely linked to globalization. Thus interdisciplinary support can become both motivation and driver for expansion activities overseas. In fact, it has become a major force in the globalization of medical and welfare practice fields.



TUAT centers its education on agriculture and engineering but also goes beyond, covering their common areas and further related fields.
The key feature of TUAT is to project further ahead of the needs of society and have the spirit to take on challenges at the forefront of technology.
And how could we nurture this "TUAT spirits" and prepare the environment to foster talents?
Behind the thoughts and experiences of our graduates, and the expectations and determination of our president, a message is left to those responsible for tomorrow.



Dr. Tadashi Matsunaga
Professor of Engineering
President
Tokyo University of Agriculture and Technology



Ms. Kyoko Sonda
Graduate of 1990 - Faculty of Engineering
CEO
Tokyo Medical Consulting Co., Ltd.



Mr. Akihiko Fujimori
Graduate of 1967 - Faculty of Engineering
Representative Director, Chairman
Fujimori Kogyo Co., Ltd.

President: Under such situation, from your point of view as industry leaders, what talent is in need of?

Mr. Fujimori: A person who can grow amid the extreme changes. It is difficult in the real world to provide an ideal work environment for each and every person hence I prefer tenacious people to join our company.

Ms. Sonda: Through work, I feel the most important things are a sense of speed and a questioning mind. Continuing to deepen the experience at our jobs will help develop the skills needed to respond to changes in the society. Also, I think I developed the confidence to try something new under any circumstances because of my experiences of creating and creating new things at TUAT.

Mr. Fujimori: I hope students today actively chase new opportunities without being bounded by the limitations of their researches. On this account, there seem to be room for improvement at both industry and university levels, to better involve the use of internships.

President: Internships would be great opportunities for students to know the real world, and we have many ways to make effective use of them. For example, it

would be possible to create new opportunities by linking the Faculty of Agriculture with the private sector initiatives or to deepen and expand collaboration with private sectors through leadership of professors at the Faculty of Engineering with private sector background.

Prevailing wind of global perspectives

President: TUAT is a university focusing on graduate education. From undergraduate to doctoral programs, students can be enrolled for up to nine years. During this nine years of consistent education we develop students into world-class human resources. In the first four years in undergraduate school, students will improve their practical English proficiency and gain travel abroad experience, while in Graduate School they will experience active learning through international joint research and presentation of results. We

have also established an integrated support system for inbound students with the cooperation of potential outbound students. In addition, in 2013 we started the "Leading Graduate School Program" sponsored by MEXT. This is a graduate school program for training innovation leaders in a new era of non-petroleum-dependent food production. Our other program titled "ASEAN initiative to foster the next generation talents to lead environmental friendly food production, technological innovation and region planning", adopted under a national government policy of "Re-inventing Japan Project".

Mr. Fujimori: Nonetheless, the remarkable advance of China and South Korea in Turkey has left an impression that Japan is late comers. Maybe it is because of the impact of "the lost 2 decades of Japan"*.

President: The whole nation became too focused domestically, and the number of students studying abroad in Europe & North America decreased. However, many TUAT students put their hands up to join our short-term training program to ASEAN countries as part of the "Re-inventing Japan Project", I believe the students' mind is changing and that they too are feeling the changing wind.

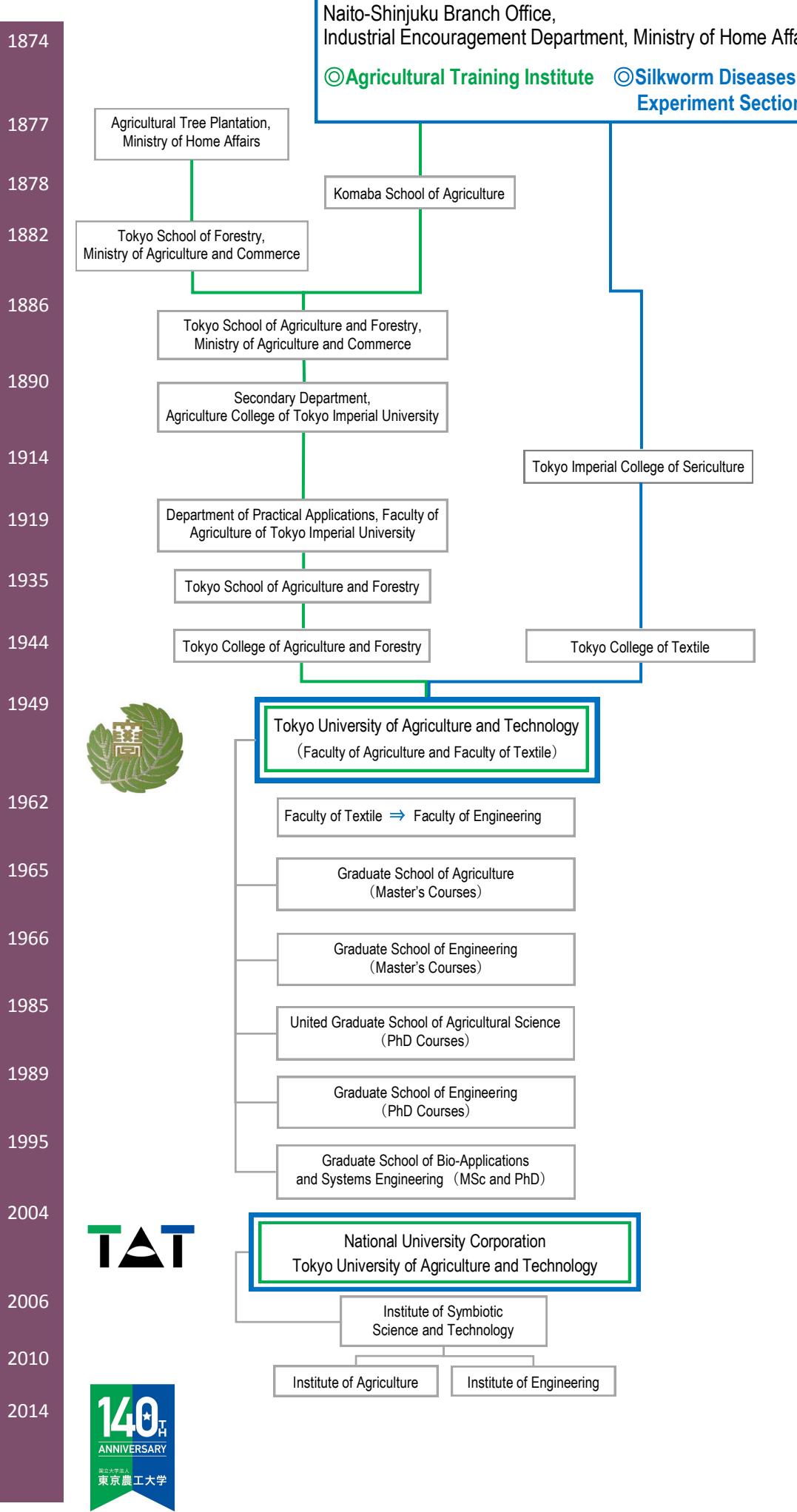
Mr. Fujimori: Through my experience at our factories in Malaysia and Thailand, both of which are multi-ethnic countries, I have seen a number of cases where things do not go smoothly with only one viewpoint. A global perspective accompanying the field of expertise would be important.

President: It is the mission of TUAT to develop human resources that the society demands. It is not enough to just develop talents for the purposes of new value and innovation. We strive to provide students with an environment where all can grow sharing a sense of speed and values; a place where they can learn real life science in diverse and practical ways, and be stimulated by a rich variety of human resources.

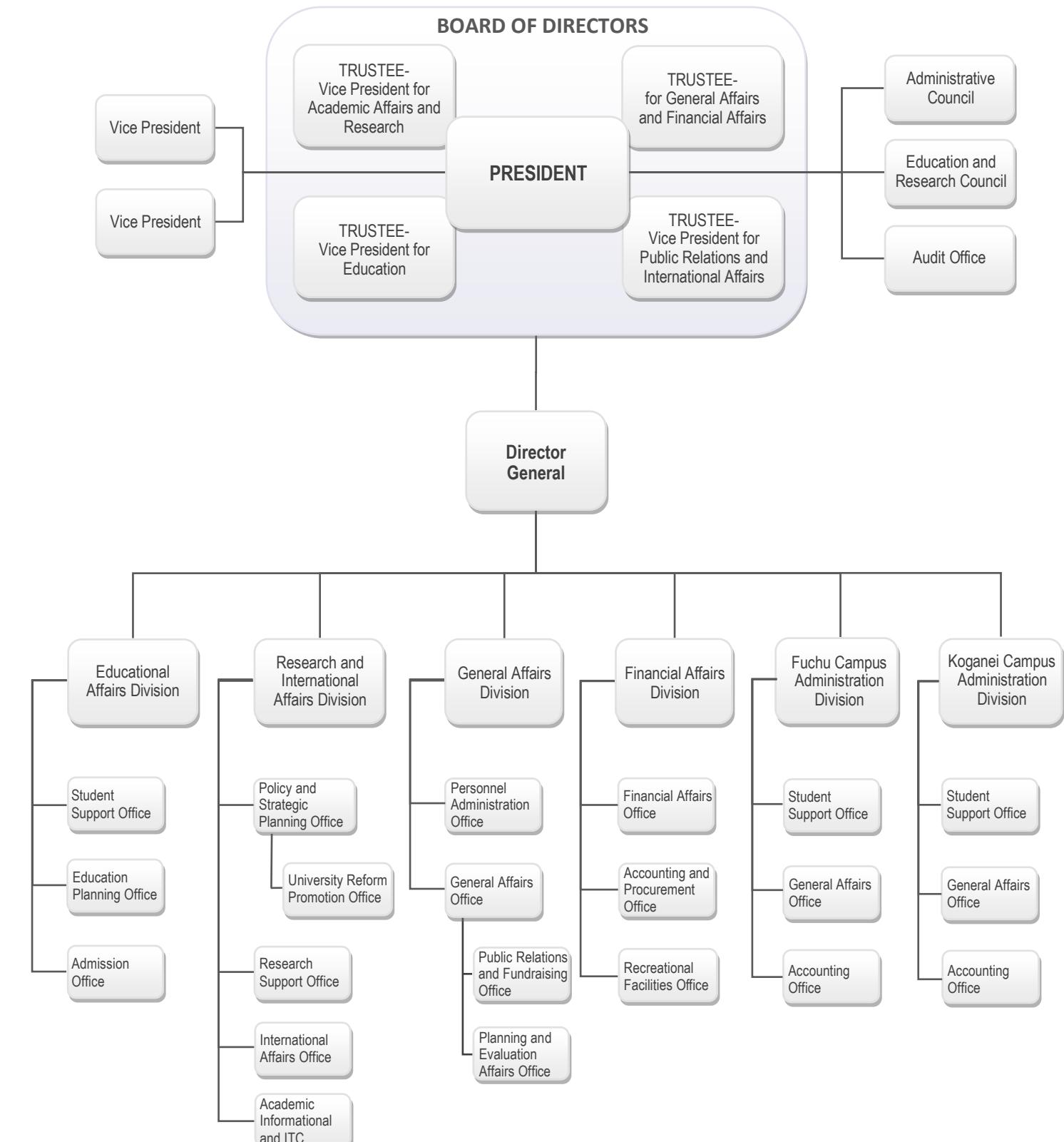
*Refers to two decades that the Japanese became stagnant after its 1980s bubble economy burst in 1991.



UNIVERSITY HISTORY



ADMINISTRATIVE STRUCTURE



農学部

Professor Ookawa's Research



Assoc. Prof. Taiichiro Ookawa
Department of Biological Production

Profile

1987 - Bachelor of Agriculture,
Tokyo University of Agriculture and Technology
1989 - Master's in Agriculture,
Graduate School of Agriculture, TUAT
1994 - Ph.D. in Agriculture,,
Graduate School of Agriculture, TUAT
2007 - Associate Professor in Agriculture, TUAT

Area of Research: Plant Production Science, involved in NERICA rice improvement in Africa Rice Research Center, and Max Planck Institute of Molecular Plant Physiology, Germany.

Research Topic

Research aiming at improving food production and rice harvest in Japan and in the world

At TUAT, there are a lot of farmland, woodlands and forest, so called the Field Museum (FM). The bases of our research are performed in paddies at FM Honmachi and at greenhouses at Fuchu Campus with room temperature of 25 degree Celsius and humidity of 60%. During the winter months, there are about 3000 individual rice planted in pots in the greenhouse.

The objective of our research is to increase rice production. The yield of rice can be increased by making the stem of rice stronger and by increasing the photosynthetic capacity. Many attempts have been made up to now by researchers. In the second half of the 20th Century, fertilizers were used as a method of increasing the size of the grain, however the stem could not hold up the total weight as the grains become bigger. Until now we managed this problem by shortening the stem. However, this method made the rice panicles smaller, with lower yield.

Therefore, there is a need to maintain the strength of rice plants by making the stem thicker. By doing so, the rice stems can avoid being knocked down by strong winds such as typhoon which is common before the harvest season. We need to examine the physiological process that makes a stem thicker, to identify the gene involved in the growth of the stem in the region of chromosome (DNA marker).

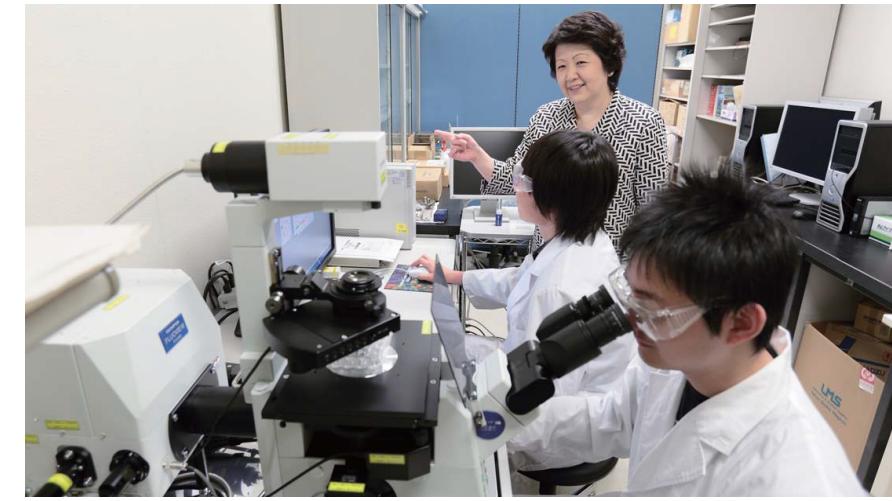
Meanwhile, to improve the ability of photosynthesis of plants, we are conducting a study to measure the absorption rate of carbon dioxide (CO₂), so to increase the rate of absorption per unit leaf area. If the capability of photosynthesis could be increased, this could result increased biomass production of rice which will increase the yield of rice. In the future, by further advancing these researches and by integrating the results obtained from them, we can develop various edible products with added taste and increased harvest, as well as biomass energy and feed. I would like to continue our research to contribute to improvement in production of foods and energy in Japan, and to the improvement of food production in Asia and the world.

Message from Sensei

Japan has been suffering lack of successors in farming for a long time. But rice is the staple food and indispensable to dinner table in Japan, thus its growers play an important role. In this regard, the mission of the graduates of the Faculty of Agriculture is to systemize the farmers' knowledge and skills obtained from their experience. For this goal, all members of my research laboratory plant rice every spring and work closely to make this event successful. Growing rice is a full-year process, as the paddy farm of Field Museum Honmachi would be affected by mother-nature, therefore our research could often become a long process.

工学部

Professor Miyaura's Research



Prof. Dr. Chisato Miyaura
Department of Biotechnology

Profile

1978 - Bachelor of Pharmaceutical Sciences,
Tokyo University of Sciences
1983 - Ph.D. in Pharmacy,
Tokyo University of Science

Area of Research: cancer metastasis, proliferation and invasion, osteoporosis, pathogenic mechanism of periodontal disease and medicine development

Research Topic

Approach human health from Life Science point of view, and apply pathogenic mechanism and pathological analysis for medical treatment and prevention

We research themes surrounding cancer, osteoporosis, periodontal disease, and other life-style related diseases. In a technology world, the notion of "life-style related disease" may sound very specialized, however, by using knowledge in chemistry, physics and biology, we can conduct the research via biotechnology.

Biotechnology is one of the professional fields, where we conduct genetic analysis, study adjustment mechanisms at the molecular level, pathogenesis and development of medical treatment using animal models for human diseases. All these researches are and will be useful to every one of us and our ultimate goal is to make them accessible to the general public.

In cancer researches, we focus on the treatment and control of the metastasis of cancer to remote organs. New surgical cancer treatments are on the rise, however, in order to reduce the rate of cancer related death, it is important to eradicate bone metastasis from breast cancer and prostate cancer to other organs.

There are increasing cases of osteoporosis, and we are currently active in conducting research and development that could lead to treatment and prevention of osteoporosis. In today's aging society, the diseases related to bones, teeth, and lipid metabolism (obesity) is very important to securing a healthy life span, meaning the period with a self-supporting healthy life for humans. Our efforts in finding solutions to these challenges, will no doubt lead to improving people's life.

I became involved in the current research as a result of tackling research on hard tissues such as bones. Early in my career in research, I conducted drug development for osteoporosis, and study on bone metabolism followed by research on bone metastasis of cancer and periodontal disease.

I will continue to promote researches in Life Science as a mean to improving people's health through "prevention by functional food and treatment by appropriate drug".

Message from Sensei

Speed and endurance are important concepts in conducting research. To discover something new, the power to advance the research and constant efforts are both important. These elements are important not only to researchers but for all humanity. There are over 30 students in my laboratory, and I teach them the importance of tackling the research sincerely. Your experiences as a student will be the foundation of your potentials and strength once you are a member of society.

農學部

Professor Kaneko's Research



Assoc. Prof. Yayoi Kaneko
Department of Ecoregion Science

Profile

1985 - Bachelor in Animal Husbandry & Environmental Science, Azabu Univ. Faculty of Veterinary Science
1992 - Master's in Environmental Conservations, Graduate School of Agricultural Science, TUAT
1998 - PhD. in Natural Resources, United Grad School of Agricultural Science, TUAT - Research Fellow at Toyota Foundation, Oxford University, and the Ministry of Land, Infrastructure and Transportation and Technology Policy Institute
2007 - Associate Professor in Agriculture, TUAT

Area of Research: the ecology of Japanese badger

Research Topic

We aim at developing conservation technologies through the research of our ecology focusing on carnivores as the key role of the ecosystem

At TUAT, we have a long history of education and research of wildlife related topics, in fact we were the first Japanese university in 1966 to start researches to address the issue of environmental conservation. In the Carnivore Ecology and Conservation Research Group, our main target is the protection of wild mammals. In particular, we study "the protection of endangered native species" from the destruction of biological interactions due to excessive human interference and foreign organisms; "the prevention of habitat destruction" that is caused by human activity; and finally research into the appropriate nature of human society to maintain the sustainable ecosystem and conservation measures needed.

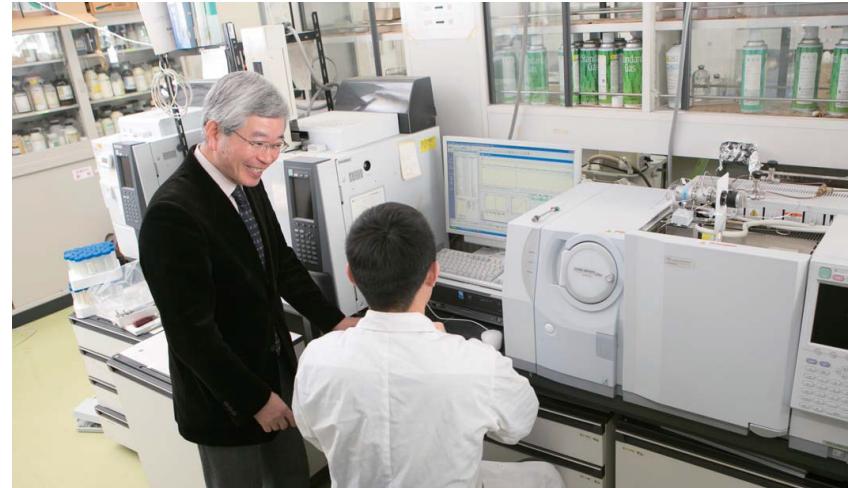
The subject carnivore animals of our research is the top predator in the ecosystem, and they can become symbol of species conservation promotion activity. Research in this carnivore animal is equipped with a variety of potential for conservation and basic research, such as recommendations of protection measures and practical understanding of the entire ecosystem, but research institutions studying the ecology in Japan is limited.

Asia has been the origin of the weasel species, but there are many missing pieces of the puzzle in basic ecology. This means that basic information such as the breeding season is scarce, and we cannot design the concrete measures of preservation with speed. In our laboratory, we are carrying investigation to clarify the basic ecology of animals and research on direction of the evolution of its kind in parallel with investigation on conservation.

As to the case of animals in urban areas, wild animals are returning to the center of Tokyo and other areas where distribution is previously regressed by the development. Accordingly, we conduct investigation on badgers and raccoon dogs, on their foraging ecology, social structure, and the ecological density, as well as the role of urban green space in the maintenance of the ecosystem. And we provide various recommendations for the co-existence of wildlife and local residents. Would you like to join our excitement in finding out the rules and processes to solve the unpredictable problem concerning nature and wildlife?

工学部

Professor Hosomi's Research



Prof. Dr. Masaaki Hosomi
Department of Chemical Engineering

Profile

1976 - Bachelor of Environmental Engineering, Osaka University
1977 - National Institute for Environmental Studies
1992 - Department of Substance Biological Engineering, Tokyo University of Agriculture and Technology

Area of Research: Environmental bio-engineering

Research Topic

Developing a sustainable system and technology to reduce environmental impact and processing cost

We carry out research with the goal of "developing systems and technology for a sustainable world, that can preserve the environment and maintain industrial growth". Currently, we are working on the development of wastewater treatment systems. Wastewater treatment is costly and consumes energy. In Japan, technology for treatment of wastewater from factory is well regulated, however, treatment of livestock farming wastewater is lagging behind due to cost issue.

A possible solution to this is if we take waste from livestock farming industry and use it as raw material to produce methane by fermentation process, rather than target of waste treatment, we can create energy at the same time as solving the problem of wastewater treatment. Moreover, I believe that the self-sufficiency rate of feed may be improved by deployment of forage-rice in fallow paddy fields.

Rice crop, livestock farms, wastewater treatment, and methane fermentation, at a glance, appear to have nothing in common. However, we can create a system to connect them: rice in the husk can feed the livestock, the remaining straw and husk can be used as raw

material for methane fermentation; waste from the livestock can also be raw material for methane fermentation; by introducing new dry methane fermentation technology, treatment of wastewater from fermentation process can be eliminated; furthermore, dry methane fermentation residue (sludge) can become fertilizer for a healthy, high-yield rice.

As a result, import of feed can be reduced, one negative effect is an increase of greenhouse gases, i.e. methane and nitrous oxide (N_2O) created by the methane fermentation residues, while producing fertilizer.

It is important to note that N_2O is the leading cause of destruction of the ozone layer at the end of the 21st century. Thus, we need to create technology and develop a system to recycle substances and recover energy while at the same time control methane and N_2O emissions in paddy fields. In addition, for the system to be long lasting, it needs to be low-cost, sustainable solutions, and functional as a whole. We are working towards development of such a new technology and the advancement of the conventional technology.

Message from Sensei

The motto of our laboratory is to personally visit the sites on our own, understand the characteristics of the habitat and the animals on one's own way. Some of our lab members are out in the field work for 200 days of the year. For successful field work, students will learn to make preparations in advance, to acquire communication skills necessary in the field and presentation ability to convey the data collected through investigations and research. Students will also develop the ability to build human relations for the collection of scientific data during the course of field work.

Message from Sensei

Over 20 students belong to my laboratory with strong sense of mission for the environment engage different themes from energy-efficient wastewater treatment technologies incorporating new microbe that can control nitrous oxide, to decomposition technologies of PCB, in addition to the research topics mentioned above. By promoting researches essential to society, we are developing talents with broad vision to objectively judge the significance of the research, and to understand its wider applications not just limited to discoveries in one special field of research.

農学部

Professor Fukushima's Research



Assoc. Prof. Ryuji Fukushima
Cooperative Department of Veterinary Medicine

Profile

2002 - Bachelor of Veterinary Science,
Nihon Veterinary and Life Science University
2007 - Assistant Professor of Veterinary Department,
Tokyo University of Agriculture and Technology
2013 - Associate Professor in Agriculture, TUAT
- Head of Department of Cardiology & Surgery

Area of Research: Clinical Veterinary Medicine

Research Topic

To explore the development and applications of therapies for intractable diseases of animals to humans via a link in research and clinical studies

Companion animals such as dogs and cats are the subject of our research as we are working towards development of new treatments for incurable disease and understanding of its origins. In particular, our research focus is on the ultrasonic diagnosis of arrhythmia and each organs.

Currently, the mystery surrounding arrhythmias have not been elucidated and many basic researches have been made on rodents such as mice and rats. It is true that in many cases our results obtained cannot be directly applied to dogs and cats. Our studies will always place utmost importance on the development of treatments that can reduce the burden on the animals, and we have in mind also its clinical application to humans.

All researches must be directly connected to clinical applications, if not, it would be just "a research for research". In this regard, we disclose the results obtained to the public based on our beliefs that they should be used for the benefit of animals and veterinarians across the country. After college, I worked at an animal hospital as a clinician. There were times that events I took for granted as daily events were announced as a new discovery a few years later.

There are cases of new treatments for diseases that are discovered accidentally from clinical practice. For example, when a supplement for skin disease that contains DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid) obtained from fish fat, was given to dogs of old age, both skin symptoms and dementia symptoms improved. This was because the clogging of blood vessels in the brain has been resolved by the health supplement for skin disease. This pattern of link from clinical case to research, which is reversal from the general pattern (from research to clinical case) is also frequently possible. We will continue to conduct research aimed at establishing the link with the clinical application.

工学部

Professor Uno's Research



Prof. Dr. Toru Uno
Department of Electrical and Electronic Engineering

Profile

1980 - Bachelor of Engineering,
Tokyo University of Agriculture and Technology
1985 - Ph.D. in Electrical Engineering,
Tohoku University Graduate School of Engineering
1998-99 - Research Fellow for Japan Ministry of Education at Pennsylvania State University

Area of Research: electromagnetic wave engineering, computational electromagnetics, metamaterials

Research Topic

Understand information inherent in electromagnetic waves and apply to wireless communication, medical care, protection of cultural properties and social activities

Electromagnetic waves are generated where electricity current flows; UV light, infrared rays, and visible light such as the "light" are also defined as the electromagnetic waves. However, subject of my research is so-called radio wave which has frequency range that can be used for wireless communication. It may be easier to imagine if I rephrase that my research is about how to make antennas for TVs and communication terminals. In fact radio waves exist everywhere in the world from smart phones, mobile phones, to microwave ovens and wireless LAN. SUICA®, PASMO® and other non-contact-type IC cards which also use radio waves. Radio wave is invisible and the only way to understand this invisible object is to conduct experiments and calculations, and clarify the results step by step.

Nowadays mobile phones have an internal antenna, but previously when you make a call, the antenna has to be extended. It was an alumnus of my laboratory who succeeded in producing a built-in antenna for mobile phones for the first time. He now works in an electric company.

In addition, our laboratory also conduct research related to transparency cloak. It may sound bizarre but by combining metal and insulation we can create a substance/structure that is not existent in nature. This substance is called metamaterial, for which a variety of research projects are underway to improve the performance of devices for wireless communications and to develop new features.

Radio waves are used not only in the areas of electronic communication, but also widely used for medical care and protection of cultural properties. A good example is MRI (magnetic resonance imaging), which makes pictures inside the body. Radio waves emitted from the human body is processed as an image thereby making the internal body visible. MRI became user-friendly with improved antenna performance and computation speed in line with advancement of electromagnetic research. Moreover, by radio wave emission to ground and processing the reflecting wave data, we can create images of the underground. This technology has greatly contributed to the protection of cultural properties.

Message from Sensei

Message from Sensei

In my first year of clinical practice, I was asked what kind of Veterinarian I would like to be, and my reply was that "I want to be able to do basic research in parallel with clinical application and also be able to perform a chest surgery". I was told that was not possible to achieve my goal in Japan then. Now, 15 years later I am able to realize my desire. In guiding my students, I remind them the importance of having a belief. Also, for those who aim to be a Veterinarian, I hope they would not only possess the knowledge and technology, but also the "thoughtfulness and concern" which are fundamental to care for animals, understand and care for the feelings of the owners.

Approximately 20 students belong to my laboratory. Consisting of fourth-year undergraduate and graduate students, they conduct researches in small groups. The process of the research is important, however, "the result is everything" in a research. In order to get a result you need effort and experience, and through experience in a variety of researches you will observe different things, all of which would lead to future application. Furthermore, "window-shopping" in other research fields is also valuable, as anything can become a discovery in a new field of research.

Five Departments

- ◆ Biological Production
- ◆ Applied Biological Science
- ◆ Environmental and Natural Resource Sciences
- ◆ Eco-region Science
- ◆ Cooperative Department of Veterinary Medicine

"To coexist in harmony with nature, our future begins with Agriculture"

**In April 2014:
327 graduated
1,397 enrolled**

Faculty of Agriculture

農学部

Established 1949

The Faculty of Agriculture consists of five departments aimed at contributing to the creation of a sustainable society. We strive to nurture talents with skills and practical capabilities to help address global challenges in the fields of agriculture, life science, environmental science and veterinary medicine.

Common core subjects will provide the fundamentals of various fields of Agriculture, and advanced courses will allow students to gain specialized knowledge through researches that dig deeper into their specialization.

Our educational programs encourage students to build a broad view of education, conduct mission-oriented researches that meet social demands.

Students with the following attributes will be selected:

1. a desire to understand the challenges facing our global community and regional communities; namely food crisis, energy and the environment. And apply one's knowledge to finding solutions to these challenges;
2. objectively understand global challenges, develop one's own opinion and able to express it to a wide audience; and
3. strong ability in problem solving and applying fundamental knowledge to practical situations.

A career in the field of agriculture is very rewarding where you can contribute greatly to our society.

農学部

Established 1949



Message from the Dean of Faculty

Dean
Prof. Dr. Isao Ogiwara

The mission of our Faculty is to contribute to the protection of the Earth's ecosystem, to develop science and technology for the purpose of food and biological material production, and to support the quality of human life while maintaining and respecting the balance of every region.

However, in the 21st century, we are faced with many challenges such as the rapid rising global population, shortage of food, the depletion of fossil fuel energy, climate change caused by global warming, and spread of infections. These challenges are now of a global scale and they form 4 pillars, namely Agro-science, Eco-science, Bio-science and Animal-science. Our Faculty's ultimate goal is to develop quality graduates who could help resolve these challenges.

Students will be able to undertake practical and flexible educational programs that include experiments, seminars and lectures with high degree of specialized knowledge that would build a foundation of insight, problem solving skills, international cultural awareness and challenges and English language proficiency.

Moreover, in our Faculty we have highly skilled and friendly professors, fantastic staff who is very supportive and a beautiful green campus which make it a wonderful study environment.

Good Luck!!!

Faculty of Agriculture

Biological Production



Agricultural production supports human life widely by supplying various raw materials such as food, fiber and pharmaceutical products. Our natural environment, farmland and the ecosystem are all intertwined and it has played a multifaceted role in conserving our environment.

**"Making foods and food safety
a Science in the 21st Century"**

In our department of Biological Production, students will gain a deep understanding of agriculture, both Japanese and international, by acquiring the knowledge and scientific skills concerning agricultural production, processing and circulation of fresh produce. Our educational programs and training aim to develop talented students with the know-how and expertise to take an active leading role in society.

Our curriculum covers many aspects from basic biology to the analysis of the creature production function including photosynthesis, nourishment absorption, nitrogen fixation, lactation physiology, analysis and the technology development of the production process including stock structure, fertilization management, the domestic animal breeding management, quality evaluations of products, the consumption and circulation of foods.

Employment Found at:
Japan Tabaco, Sapporo Beer
Sumisho Foods, Kagome
Japanese Consumer Coop
Ministry of Agriculture and Forestry

Student's Voice



There is a large field on campus grounds where we perform practical experiments, this is the best environment to have practical learning. I want to apply what I have learned here to help produce quality rice and healthy vegetables.

Takumi Kawame
3rd Year

Faculty of Agriculture

Applied Biological Science



Applied Biological Science is a study based on chemistry and organism to demystify the series of life phenomena and biological functions with respect to interactions among molecules, cells and organism. In addition, the objective of this course is to contribute to the advancement of bio-science for the benefit of human kind.

"Expect the unknown possibilities of Life"

Key characteristic of the department is to design a curriculum to familiarize students more about the concepts of "life" and "creature", within the background of agriculture, which nurtures life.

Bioscience is the research and understanding of the biological functions of microscopic organism, plants and animals, based on chemistry and biology. Whereas biotechnology is the application of findings in bioscience to manufacture high quality and high performance goods necessary in our daily life such as foods, medicines and agricultural chemicals.

There are great expectations for the area of the biological sciences and biotechnology to take a leading role in resolving problems facing our globe particularly concerning food, health and the environment. In this Department, we aim to develop talents who could apply their knowledge towards finding solutions to the challenges facing the human race.

Employment Found at:
Yamazaki Nabisco, Ajinomoto
Tablemark, Itoyakado
Japan Association of Farmers
Meiji, Asahi, Astellas Japan

Student's Voice



I like insects since I was little and in high school I wanted to the study about pesticides. My parents advised me to join this department where I can learn many aspects of living creatures. Everyone in my class is friendly and easy to talk to. This course is fantastic for people interested in DNA and Bio.

Taiyo Sasaki
3rd Year

Environmental and Natural Resource Sciences

Our globe is faced with environmental problems that as a society we cannot avoid. For humans to coexist in harmony with the earth, we need to train future professionals with a scientific background who will contribute to finding a solution to our environmental problems.

"Environmental protection" lectures will enable students: 1) to identify the behaviors of pollutants and hazardous substances that cause environmental problems; 2) to understand the effects of these substances on animals and plants; and 3) undertake experiments to develop techniques for dismantling and purifying these hazardous substances.

"Resources Material Sciences" lectures cover the subject of plant biomass, which constitutes a massive carbon storage, by deepening the understanding of efficient use and recycling of wood resources and conducting researches on the use of forest resources from various points of view.

Research covers a wide range of fields, from the whole biosphere- constituted by air, water and soil to the micro-world, which includes the microorganisms responsible for the physical cycles in nature and the nano-world of molecular sized subjects.

By acquiring the basic knowledge of Biology, Chemistry, Physics and Geosciences, one will learn how to "perform surgery" on our environmental and resources problems as part of the "Medicine of the Earth". It is our mission to preserve our invaluable global environment and to promote a recycling oriented society.

Employment Found at:
Polas, Meiji, Asahi Kogyo
Ministry of the Environment
Prefectural Government of Nagano
Nippon Paper Group

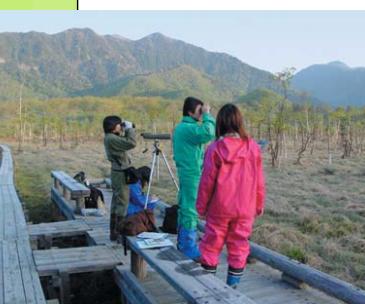
Student's Voice



I am interested in environmental issues and I want to help improve the conditions of Fukushima region, which is also my hometown. I want to continue researching about radio-activity contamination in micro-organisms to develop a dream-come-true decontamination method in the future.

Kazuya Nemoto
3rd Year

Ecoregion Science



"Our Glo-cal concept: think global, act local"

The theme of our Eco-region Science Department is to design a "community area" where nature and human lifestyle can coexist. Considering forests, farms, rural districts and cities as a part of the same community area, we develop innovative education and research focused on a given ecosystem.

By learning through practice and direct contact, we aim to nurture human resources who could:

- rethink the role of local wildlife, forests, green lands and farmlands in rural areas from a global point of view;
- revitalize and preserve the environment and the natural resources through local actions towards a more sustainable production and resource management; and
- contribute to building a more harmonic relation between nature and humans.

We believe that different environmental issues should not be considered individually, but comprehensively as part of an ecosystem. With that in mind, we aim to restore and preserve regional ecosystems through research, practical knowledge and techniques under a global point of view.

This course offers a unique curriculum with adapted and deeply related subjects ranging from natural to human sciences, covered not only in class but with practical activities and always respecting students' individuality and needs.

Employment Found at:
Uniqlo, M-Tech
Ministry of Transportation
Mitsubishi Agriculture Products
Japan Civic Consultant

Student's Voice



I learnt so much about the ecosystem, forest system, engineering system and society. We engage in debates, discussions and exchanged different views. We did field studies and experiments in a forest reserve in North Kanto area. I also did an internship at a private wood company and was well looked after by an alumni.

Azusa Ono
4th Year

Faculty of Agriculture

Cooperative Department of Veterinary Medicine



We have found strong evidence in animal activities to improve the health and mind of humans, that is through the caring for health and welfare of animals (both domestic and wild); securing safety in food derived from animals; and protecting wild animals.

"Practice the latest Life-Science and follow the health progress of animals and human beings"

Our curriculum provides fundamental education and field work studies to build on principles of animal medicine, and practical experiments are carried out on real-life situations to study the treatment and prevention of the animal illness. 5th and 6th year students will be designated to a research lab where they will write their graduation thesis under guidance of their professors, here they will also take the national examination for Veterinarian License. Our laboratories are of international standards and equipped with the latest equipment which makes it a satisfying environment to belong to.

In 2012, a special cooperation between Iwate University and TUAT established a veterinary medicine base for the region of East Japan to strengthen the acquisition of the advanced medical technology and the training of veterinarians in the field of animal hygiene and public sanitation with respect to both industrial animal and companion animals.

Employment Found at:
Daiichi Sankyo, Meiji
Takeda Pharmaceutical, Japan Tabacco
Otsuka Pharmaceuticals
Ministry of Health Labor and Welfare

Student's Voice



I learn different characteristics of every animal while taking care of a different animal every school year. This is valuable experience as we have goats and cows on campus. I could spend my student life happily with 40 students, our friendship grows stronger thanks to this Department.

Eight Departments

- ◆ Biotechnology and Life Science
- ◆ Applied Chemistry
- ◆ Organic and Polymer Materials Chemistry
- ◆ Chemical Engineering
- ◆ Mechanical Systems Engineering
- ◆ Applied Physics
- ◆ Electrical and Electronic Engineering
- ◆ Computer and Information Sciences

"Always stay with cutting edge science and technology, as we strive to develop graduates to become future leader"

In April 2014:
547 graduated
2,491 enrolled

Faculty of Engineering

Established 1962

The Faculty of Engineering provides educational programs with the goal of developing active and creative graduates to be at the forefront of scientific and technological progress. Students will gain fundamental knowledge on key concepts such as space, robotic, optics, information, substances, biotechnology and safety, all of which cover a wide spectrum of science and technology.

We aim to select students with three main attributes:

1. a deep interest in nature and a strong desire to create products. And apply one's knowledge to contribute to the realization of a sustainable society;
2. objectively understand global challenges, develop one's own opinion and able to express it to a wider audience; and
3. strong ability in problem solving and applying fundamental knowledge to practical situations.

Our excellent educational environment, state of the art facilities and enthusiastic professors will motivate students to excel with their research and deepen their interest in the field of engineering. In addition, our research activities are ranked among Japan's best and through variety of collaborations with other national and foreign institutions, private enterprises and industry leaders in the field of R&D.

Join our faculty and acquire a passion for learning.

工学部

Message from the Dean of Faculty



Dean

Prof. Dr. Hiroyuki Ohno

Our main campus is situated in the outskirt of Tokyo Metropolitan, only 30minutes by train from Shinjuku by train, surrounded by the greenery of campus grounds and home to more than 4000 students including both undergraduate and graduate students. All students are always lively with campus activities and high spirits. Undergraduate students are learning a new and warm Engineering and 80% of our Engineering students go on to our graduate school. In our campus, there is a high population of female students of more than 20%, this is the largest number for engineering department among national universities in Japan.

Upon admission into our Faculty of Engineering, students will have three years of learning the core of engineering as well as acquiring specialized knowledge in the field of science and technology. The final year, they will belong to research laboratories in refining what they have learned. In the research laboratories, they will enjoy not just basic skills and knowledge but new challenges.

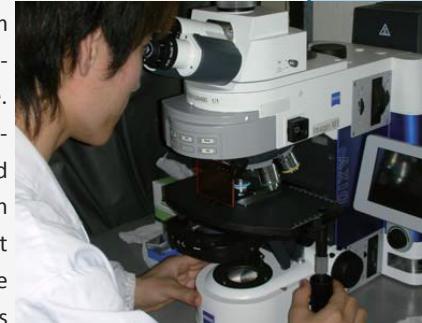
In spite that there is only one definite solution to basic question, our university asks our students to have various ones for practical questions. If you succeed in developing your mind in this way, you will become a worthy individual in society. Our graduates will learn that Engineering plays the most important role in the future of mankind. Our Faculty of Engineering is the best to serve a purpose of encouraging you all to chase your dream.

Good Luck!!!

Faculty of Engineering

Biotechnology and Life Science

To understand the mechanism of bio-functions and its applications in our everyday life. Advance researches in biotechnology and Life Science has led TUAT to be the first University in Japan to establish a Department of Biotechnology. We take pride in this pioneer step and has since created our own curriculums to nurture professionals in the field of biotechnology and life science ahead of other universities in the nation .



"To break new grounds and lead the world in Life Science researches"

In this department, we have established unique research areas such as clone animal creation, marine biotechnology, plant biotechnology, DNA chips, bioelectronics and tissue engineering and achieved internationally outstanding research.

We are also paying our attention to the new trend of research like nano-biotechnology. This research field is built by way of combining biotechnology with nanotechnology which is the most advanced research area of technical fields, such as semiconductor technology, electrical and electronic engineering, organic material technology and mechanical engineering. This field is exciting and has significant impact on our society providing indispensable tools for genome and proteome analyses as well as related application fields in the future.

Employment Found at:
Takeda Pharmaceuticals, NTT
Astellas Pharma Inc, Kao
Waseda Biomedical Science Center
Rakuten, GlaxoSmithKline

Student's Voice

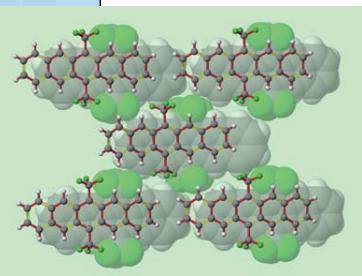


I love living things and wanted to study about DNA. I chose Bio & Life Science because I can research in medicines and study the process of food developments.

Moe Hiratani
3rd Year

Faculty of Engineering

Applied Chemistry



Development of the modern science and technology knows no boundary. Today's cutting edge technology will be obsolete tomorrow. However, it is needless to say that it is crucial to understand chemistry at atomic and molecular level.

Our department aims to promote creativity and knowledge by providing a well balance of fundamental education on Physical Chemistry, Inorganic Chemistry, Organic Chemistry, and Biochemistry, along with advanced research and experiments in chemistry.

"You can explore the world of atoms and molecules in the most advanced facilities"

One unique feature of this department is being able to think at atomic and molecular level. The world around us contains atoms and molecules that exist in chemicals and in various forms that cause reactions in many different ways. The focus of attention on chemistry is stronger now than ever as our society has a need for a sustainable development.

During the process of your study in this department, students will have to be flexible to apply basic principle in science and technology, and thus will acquire the ability to become a pioneer in new field of discovery. Our department has gained high appraisals and reputation both in Japan and abroad through the recognition of the results of our researches and the activeness of our graduates.

Join us and attempt to control atoms and molecules.

Employment Found at:
Canon, Sony, DuPont
Toyota Motors, Nichiban
Toshiba, Lion
Bridgestone, Fujitsu, Kyocera

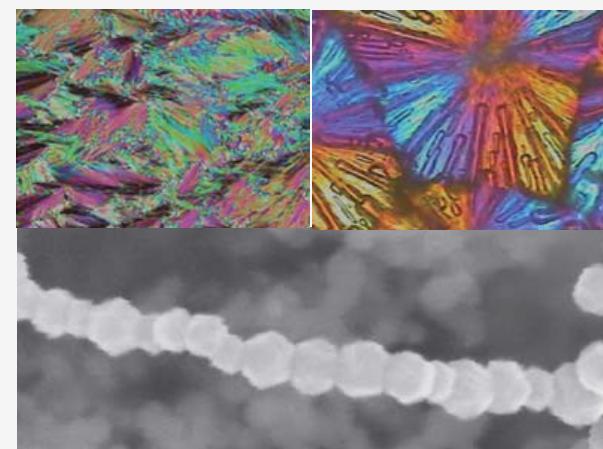
Student's Voice



I want to be involved in chemical research and I want to use my knowledge to create products that is useful in our everyday life. Besides from studying, my university life is always busy with fun activities.

Tasuke Murakami
3rd Year

Organic and Polymer Materials Chemistry



Organic polymer materials are commonly known in plastics, rubber and textiles. They are also applied to the key devices in information and communication equipment, the essential components in renewable energy utilization, and medical supplies. These organic polymer materials are all necessities in our daily lives. We have promoted education and research concerning polymer-based organic materials.

"To develop and produce high quality and high performance materials that would contribute to the sustainable growth of our society"

Major research topics include the development of (1) highly functionalized commodity materials, (2) advanced organic materials based on nanoscience for next generation, and (3) organic materials that could reduce environmental burdens from their production to the final disposal.

Our aim is to equip our students with the basic skills and knowledge in natural science based on chemistry which is essential to complete the cycle of "research-development-giving back to society" as demanded by our modern society.

Employment Found at:
Yokohama Rubber, Hitachi Chemical
Ajinomoto, Ricoh, Bridgestone
Telemo, Sekisui Chemicals
Earth Chemicals, Toyobo

Student's Voice



Small class size makes it easier for us to take high-quality lessons through interactive communication. We can also receive better support from lecture because one professor is assigned to every 3-4 students. Discussion time is very stimulating as we can exchange opinions with highly motivated students and faculty.

Saki Yoshida
3rd Year

Chemical Engineering



"Chemical Engineering to be a contributing factor for a Sustainable society of the 21st Century"

Chemical Engineering covers a wide range of fields including chemical analysis, production of chemicals and development of production systems. Our department aims to educate students to develop the ability to understand the nature of an object, to comprehend the technical problems, and to resolve the problems with consideration for economy, safety and social and environmental effects.

Students will apply knowledge in chemistry to the development of production systems that is not only cost effective but also environmentally friendly. In addition, students will have an opportunity to become chemical engineers who can create original chemical systems "from micro to macro" and from laboratory to society levels.

The science of chemical engineering can contribute to new technology innovation necessary for energy, petrochemical, pharmaceuticals and food production. Our chemical engineering methodology covers all modern issues such as earth, environment, energy, life, information and social system. We welcome every student who would like to participate in leading edge R&D in industries involved in machinery, metal, electronics, information, food, environment and energy.

Employment Found at:
Mitsubishi Chemicals, Sumitomo Chemical
IHI, Meiji, Chiyoda Corporation,
JGC Corporation, Taisho Pharmaceutical,
Toshiba Corporation, Lion Corporation

Student's Voice



Everything we have been taught can be applied in real life situations. We learned that tight windows can save electricity. There are many core subjects to choose and our professors are always active with questions and answers.

Keisuke Asada
3rd Year

Faculty of Engineering

Mechanical Systems Engineering

What kinds of knowledge and abilities are required to design and manufacture modern machinery from automobiles to home appliance, from construction equipment to medical appliances? As the complexity of machinery increases we will need intelligent robots and computer-based factory automation systems to not only produce machinery but also to maintain them at high level of performance.



"An era of hyper-machine that is more than just to coexist harmoniously with the environment"

In this Department of Mechanical Systems Engineering, the development of new materials, innovative approaches to utilizing renewable energy, and intelligent control mechanisms are all subjects of active teaching and research to create technology for the future. There are over 30 laboratories in the department, and with research activities ranging widely from basic mechanisms to intelligent machines, from hardware to software, we aim to produce engineers who are creative and well-versed in the latest advances in technology.

Our curriculum is structured so that the basics are taught first, and then more complex topics are introduced that build upon the basics. For example, fundamental analysis is first taught in the context of thermal and fluid energy analysis, strength of materials, and mechanics of materials. Students are then taught in systems engineering how to build upon these fundamental analysis techniques by combining them in a systematic method.

Employment Found at:
Kawasaki Heavy Industries, NTT Data
ANA, Hitachi Appliances, Ricoh
Yamaha, Kobayashi Pharmaceuticals
Nissan, Toshiba

Student's Voice



There are so many things that I wanted to do, and there are so many activities to do at this University. It is very fulfilling to be in this department as I can have hands on experience with disassembling gasoline engines and other industrial machines.

Misa Kawashima
4th Year

Faculty of Engineering

Applied Physics



"Creation of innovative technology based on Physics "

The progress of physics in the 20th Century has brought about the understanding of physics at the atomic level, which leads to the invention of transistors and lasers. These innovative technology developed through modern physics have contributed to the development of a wide range of products such as superconductors, nuclear magnetic resonance imaging, medical diagnostic technology, electricity and energy etc. These are now an essential in our everyday life.

At our Department of Applied Physics, students will acquire an understanding in the science of physics, develop a systematic way to think logically, and then apply their understanding to real practical situations.

In the beginning, students will learn the fundamentals of Physics, mechanics, electro-magnetism, Quantum Mechanics, Statistical mechanics, and then acquire advanced physics such as Photonics and atomic and molecular physics, solid state physics, and chemical physics.

In later stages, students will perform research activities on Optical and Quantum Science, Nanotechnology and Materials Science, Life Science, and Complex System Science to foster the ability to create innovative technology. Moreover, our department has developed our own "SAIL" program to assist students with their research capabilities and understanding.

Employment Found at:
Toshiba, Hitachi, Sharp
TOTO, Nikon, Olympus
NTT Communications
KDDI, Toyota, Bridgestone

Student's Voice



Keeping occupied with university lifestyle and enjoying it to the fullest is very important. I wanted to become a teacher in physics so I joined this department, but my studies have opened many options for me to choose from.

Atsushi Suzuki
4th Year

Electrical and Electronic Engineering



We are surrounded by electrical devices such as cellphones, computers, tv, & dvd, in which Japanese makers possess the best technology and have been the leaders in the development and manufacturing of these electrical & electronic devices. The study of Electrical and Electronic Engineering is the core of the study of this modern technology that will contribute to the development of the next generation multimedia, new energy, electronics and other leading-edge science and technology.

"Move the world with the most innovative electronic technology research"

Our curriculum comprises of a wide range of studies from fundamental electrical, electronics, optics to information system covering hard and software. You can select from elementary courses of electrical and electronic circuits to more advance mathematics, physics, electromagnetics, and courses relating to microprocessor & programming.

System Electronics Course will go deeper into the development of new electronic materials and electronic devices, development of solar power, optical communications, optical electronics, Electronics, Information and Communication Engineering Course will provide researches in communication systems of mobile phones and other forms of communication, including research on robotic technology and new technologies to enrich our daily lives.

Employment Found at:
Sony, Toshiba, Nissan
KDDI Communications, Fujitsu
Bank of Japan, Nikon, Honda
Canon, Central Japan Railway Co.

Student's Voice



My interest in electronics grows deeper as the more I learn about the principles and structure of electrical devices. Being able assemble different components gives us motivation to build new gadgets.

Masashi Kase
4th Year

Computer and Information Sciences



We develop new technologies that can achieve a ubiquitous information society where computers coexist with humans harmoniously, and beneficial innovation to sustain lifestyle and communications. Extensive knowledge and experience of cutting edge computer science and information technology are required by everyone who takes part in such an exploration. For our students, we provide an essential education program based on Computing Curricula issued by ACM and IEEE.

"technologies that can achieve ubiquitous information society where computers coexist harmoniously with humans "

In the first half of the program students study basics of computer systems, information science, and programming fundamentals. In the second half, students select specialized courses from systems technology, intelligent systems, and digital media technology depending on their interests, and finally, with extensive knowledge, work on graduation theses.

We have 18 laboratories conducting advanced research on various fields: computer architecture, OS, networking, pedagogical system, optimization, artificial intelligence, robotics, pattern recognition, human interface, virtual reality, and computer graphics. Most of our undergraduates proceed with their research in Graduate School. International students are very welcome as we have a number of graduates and Ph.D. candidates studying in our department.

Employment Found at:
Sony, Hitachi, Canon
Ricoh, Fuji Xerox, Honda,
NTT Communications,
Unisys Japan, Yahoo! Japan

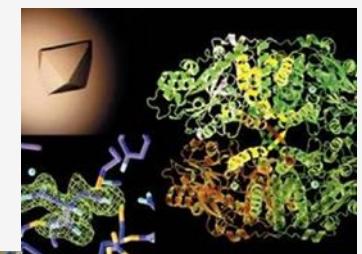
Student's Voice



I feel at-home in this department because our professors and other students are friendly. With the specialized knowledge that I gained in Information Sciences I want to have a career in software development.

Megumi Takagi
3rd Year

Faculty of Engineering



Through practical training and innovative research, our graduate schools aim to enhance the knowledge and skills of our researchers by facilitating more diverse research activities. Students will hone their skills at setting goals for their own research, identifying research topics and finding solutions utilizing fundamental knowledge acquired in their undergraduate studies.

Graduate School of Agriculture

Offers a two-year Master's course with the aim of developing specialized skills in biological functions, biological resources, the environment and information technology, all of which are indispensable in resolving global issues concerning population, food and natural resources in the 21st century. Through mission oriented research, graduates will develop a broad and deep understanding of nature and human beings, society and culture. Upon completing their Master's degree, graduates will have the option of progressing on to a doctoral degree at affiliated institutions.

Student's Voice: I felt that at undergraduate school, we learned in the passive way, but in graduate school I realized we must be proactive in what we want to learn. Also, learning broadly and beyond our specialized field has widened my perception of everything. I decided on graduate school after the strike of the Great East Japan Earthquake. I was in 3rd year of undergraduate school then and it made me feel helpless for the many people in need of help whom I could not do anything for. I also thought that "science could help people if I had deeper knowledge". Currently, I am on internship in Fiji to further my interest on environmental issues of the world.

Degrees Awarded in 2014 182 Masters

Nine Departments:

- ◆ Science of Biological Production
- ◆ Studies in Sustainable and Symbiotic Society
- ◆ Applied Biological Chemistry
- ◆ Bioregulation and Biointeraction
- ◆ Natural Resources and Eco-materials
- ◆ Environmental Science on Biosphere
- ◆ Environmental Conservation
- ◆ Environmental and Agricultural Engineering
- ◆ International Environmental and Agricultural Science



Chie Watai
2nd Year Master's Degree
Graduate School of Agriculture
Department of Environmental
Science on Biosphere

Graduate School of Engineering

Offers a two-year Master's and a three-year Doctoral Courses. Our programs will develop a solid foundation of knowledge, which will provide graduates with a high sense of ethics and an exceptional ability to grasp the essence of the issues. We are also highly ranked among national universities in Japan in terms of collaborative research with private enterprises and foreign research organizations.

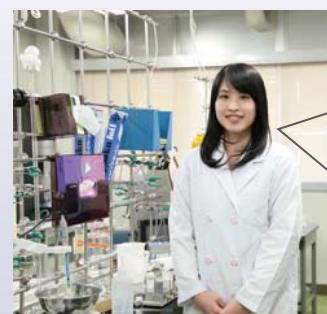
Seven Departments for Master's Program:

- ◆ Biotechnology and Life Science
- ◆ Applied Chemistry
- ◆ Mechanical Systems Engineering
- ◆ Applied Physics
- ◆ Electrical and Electronic Engineering
- ◆ Computer and Information Sciences
- ◆ Industrial Technology and Innovation (Professional Degree Program)

Four Departments for Doctoral Program:

- ◆ Biotechnology and Life Science
- ◆ Applied Chemistry
- ◆ Mechanical Systems Engineering
- ◆ Electronics and Information Engineering

Degrees Awarded in 2014 357 Masters 48 PhDs



Marina Fujihira
2nd Year Master's Degree
Graduate School of Engineering
Department of Applied Chemistry

Student's Voice: I chose TUAT because I wanted to join Prof. Murakami's lab and study biomaterials. By then I had decided to go on to graduate school. During my four years of undergraduate school, we were free to choose how to spend our time towards lectures, clubs and circles activities, and part-time work. But in Graduate School, everyday I immersed in experiments and focused on my research. I could adapt to the changes gradually by watching how our seniors made use of their time. The great thing about postgraduate studies being able to think autonomously and try various experiments. My career goal is to enrich people's lives by linking the results of my research to the joys of manufacturing.

Graduate School of Bio-Applications and Systems Engineering

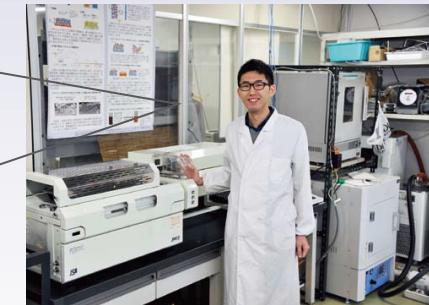
Established in 1995 to offer a two-year master's course and a three-year doctoral course. BASE aims to foster talented individuals endowed with both a wide range of perspectives in the combined disciplines of agriculture and engineering. In response to social demands, this Graduate School encourages the re-education of specialized engineers who are already in the workforce. In 2005, a joint project was initiated between TUAT and Waseda University, a private university, to promote the commercialization of research findings. In addition a new course, "Advance Health Science", was established and it is the first collaboration of its kind in Japan between a national university and a private university.

Student's Voice: I thought having a Master's degree is advantageous in our career path, thus I had already decided going on to Graduate School since entering university. However, being assigned to a lab in my 4th year changed my way of thinking significantly. My intellectual curiosity was stimulated and that motivated me to continue to the doctoral program. Currently, I am also enrolled in the Leading Graduate School Program, which runs parallel with our Master's course. Through this program, I've been able to take very specialized classes, working on laboratory rotation and overseas training programs, while finding time to broaden my imagination and attempt new researches. In my future, I want to be someone who can show the technical capabilities of Japan in the chemical industry worldwide.

Degrees Awarded in 2014 75 Masters 21 PhDs

Two Departments:

- ◆ Bio-Applications and Systems Engineering
- ◆ Joint Major in Advance Health Science



Hayato Miyazaki
2nd Year Master's Degree and
Leading Program
Graduate School of Bio-Applications and
Systems Engineering

United Graduate School of Agricultural Science

This is a coordinated effort between three universities- Ibaraki University, Utsunomiya University and TUAT- to offer a three-year doctoral course. The goal is to deepen and develop sciences related to plant and animal production, bio-resources, biological functions and the preservation of biomaterials. Currently we have 30% foreign students, which adds an international flavor to the Graduate School.

Five Departments:

- ◆ Biological Production Science
- ◆ Applied Biological Chemistry
- ◆ Symbiotic Science of Environmental and Natural Resources
- ◆ Agricultural and Environmental Engineering
- ◆ Science on Agricultural Economy and Symbiotic Society



Hiroki Wakamatsu
2nd Year Master's Degree and
Leading Program
Graduate School of Agriculture
Department of Applied Biological Chemistry

Degrees Awarded in 2014 49 PhDs

Student's Voice: Whichever career path we choose, I think it is necessary to have two abilities: one is to define the issue and find a rational solution and contribute to society; and the other is to have a broad view which is not limited by the current research. In Leading Graduate School, we decide what we want to study and set how we would like to approach it in a very practical environment; this was the reason I chose to advance to graduate school. Asking myself about my objectives, the approaches needed to realize our goals and "is this good enough?" on a daily basis made me think deeper about myself, my future and my dreams.

United Graduate School of Veterinary Sciences

Offers a four year doctoral course under a joint cooperation between Obihiro University, Gifu University, Iwate University and TUAT. This joint program aims to contribute to the development of veterinary medicine and technology. In response to international needs for veterinary science, this program actively accepts international students whose numbers have increased rapidly in recent years.

Four Departments:

- ◆ Basic Veterinary Science
- ◆ Pathogenic Veterinary Science
- ◆ Applied Veterinary Science
- ◆ Clinical Veterinary Science



Leading Graduate School for Green and Clean Food Production

Launched in October 2012, this program aims to produce talents in a new age of non-petroleum-dependent food production as we attempt to deal with the issue of energy dependent on petroleum in the production of food for the majority of the world population. This is a doctoral program covering fundamentals of human nature, to include a wide spectrum of subjects in culture, history, economics, ethic, and arts, on top of training to promote cutting edge research in agriculture and technology. With the cooperation of leading world universities and academics, we commenced a program for the training of "innovation leaders" under SRI International (an affiliate of Stanford University, USA). Workshops also take place at University of California, Cornell University, University of Bonn, Stanford University, Ankara University, and the United Nations Food and Agriculture Organization (FAO).



Workshop with Ankara University, Turkey

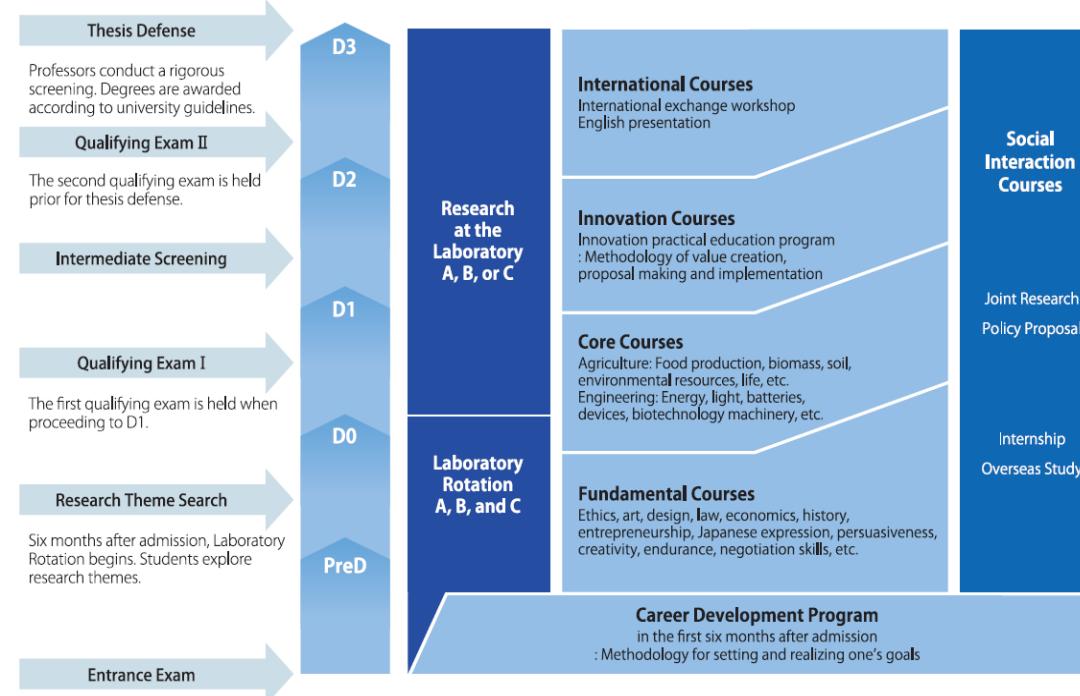
Through the training at various international sites, graduate students will identify motivation of learning such as how to take an active role in a society, and clarify his/her future goals. Training programs will provide opportunities to acquire strong command of English as well as to establish network with people from various backgrounds and professions. Other activities involve workshops with high school students and international graduate school students, all of whom could become a future leader, to find a solution to global challenges in our modern society.

Objectives of Our Program



Leading Students Actively engaging in discussion activities

Education Program



ASEAN International Mobility for Students "AIMS" Program 2014

Through the Ministry of Education of Japan (MEXT) initiative in 2013 to "Strengthen and Internationalize Japanese Higher Education" to bring Japanese institutions to the international framework. Tokyo University of Agriculture and Technology is designated together with Ibaraki University and Tokyo Metropolitan University to participate in the ASEAN International Mobility for Students (AIMS) Program. The three Japanese Partner Universities will use strengths of each university to provide programs that would contribute to solving global challenges including environmental conservation and economic development of ASEAN region. Universities designated as AIMS Affiliate will receive the full backing of their national government to provide reciprocal exchange program among the AIMS network of universities in Malaysia, Indonesia, Thailand, the Philippines, Vietnam, Japan and Brunei. In principle, selected students will be receive government scholarships, tuition at host universities will be waived, courses are taught in English and with full credit transfer at home university.



Prof. Dr. Takayuki Okayama
Professor of Faculty of Agriculture

Tokyo University of Agriculture and Technology offers subjects in the areas of Agriculture, Food Science and Technology, and Engineering:

Advanced Environmental Agriculture and Food Technology Course

Environment-Friendly Technological Innovation Course

Ibaraki University will offer subjects in the area of Agriculture:

Regional Sustainability Science Course

Tokyo Metropolitan University will offer subjects in the area of Hospitality and Tourism:

Regional Development with Tourism Course



ASEAN countries are seen as the center of economic developments for the globe and in recent years there have been numerous Japanese enterprises entering this region. Japan is a world leader in science and technology and by sharing our experience with ASEAN region Japan will benefit both sides, in particular Japan can share the common environmental challenges resulting from economic development.

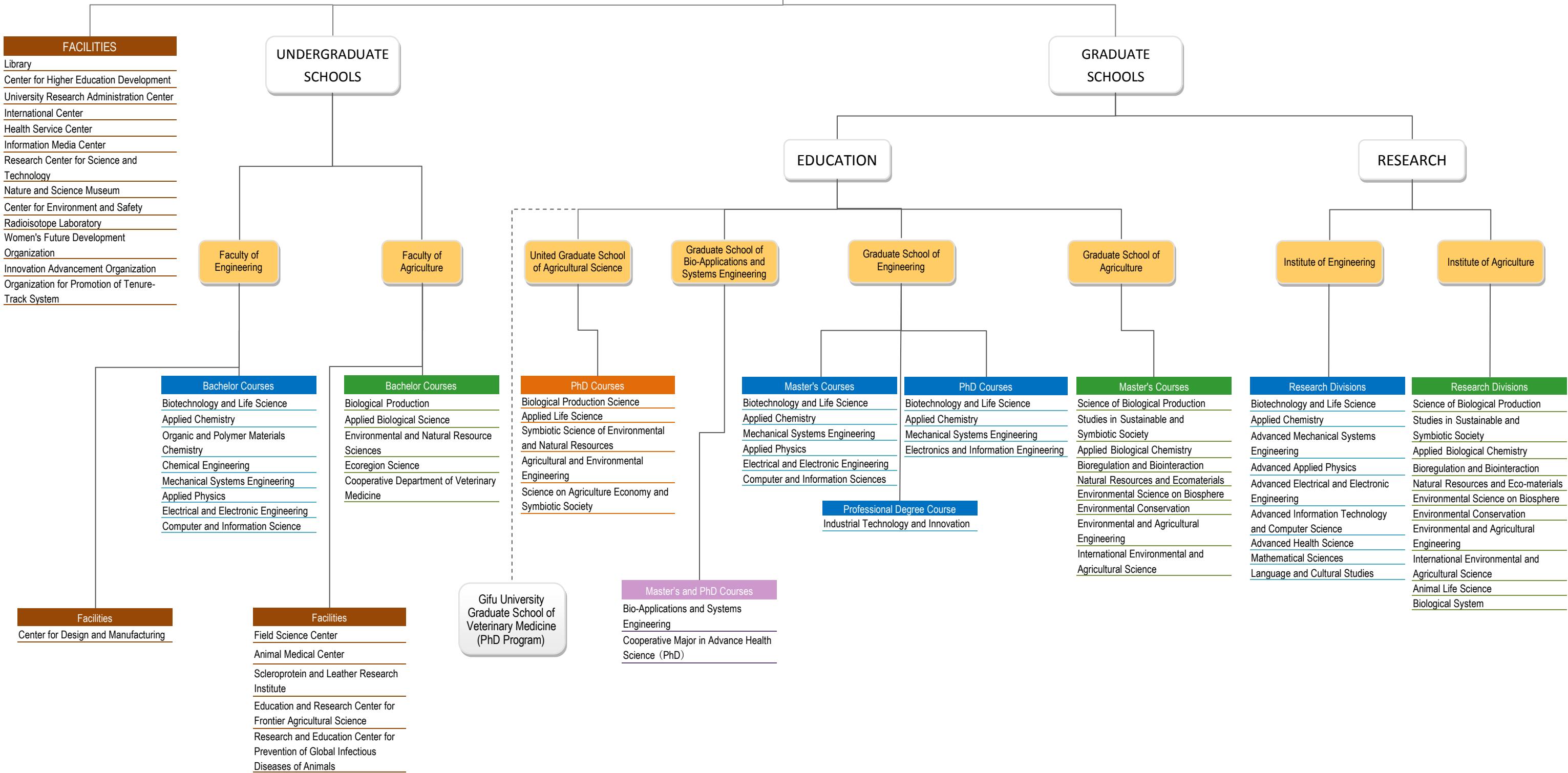
In this program, at TUAT we provide appropriate training to our students so they can function in an all English environment and obtain a required level of proficiency before dispatch, in addition to providing an exciting learning environment to deepen exchanges with international student, which would be a big step for our students to be active in the global stage.

During the four years in undergraduate program, students will strengthen their English skills as well as gain a better understanding of the history and culture, social and economic environment of ASEAN regions. Through experiences of short term overseas exchange and half year study abroad, students will gain knowledge of the discipline that works internationally in order to solve the various challenges concerning the ASEAN region. We will promote the "buddy system" to support the learning and daily life of ASEAN students and outbound Japanese students at ASEAN universities. In this buddy system, students will engage in wide circles of friendship and in return will participate in future activities long after the end of the program. Moreover, we will introduce double degree programs to allow graduates of AIMS program to enroll in an additional one year program in affiliated universities.



ORGANISATION CHART

TOKYO UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

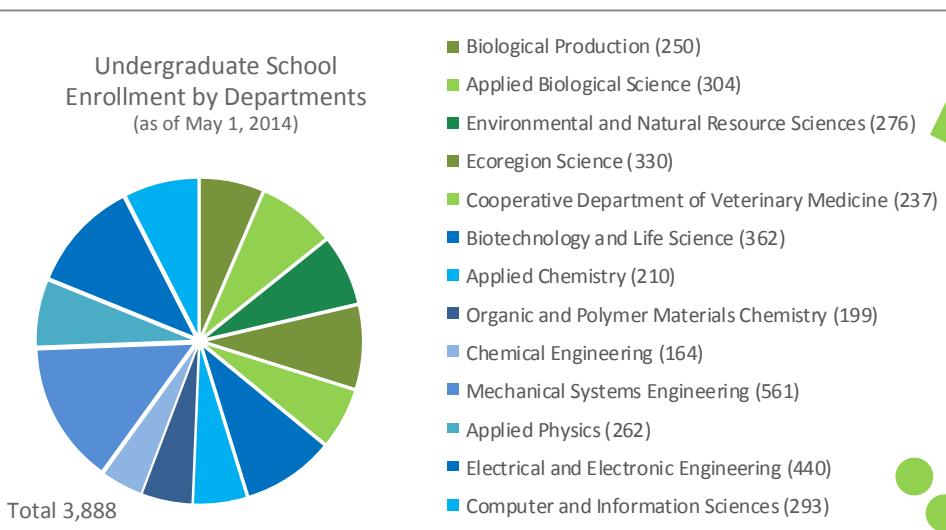


2014 STUDENT ENROLMENT

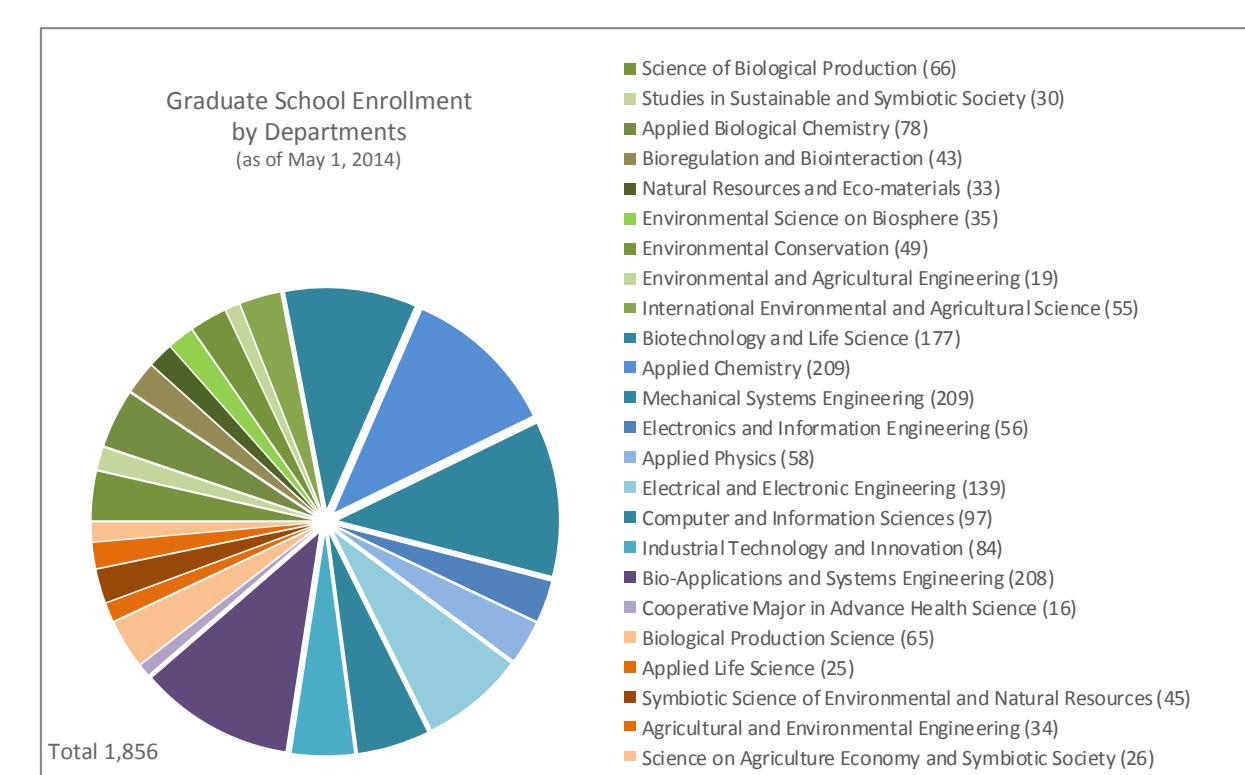
FACULTY OF AGRICULTURE	Male	Female	Total
Biological Production	133	117	250
Applied Biological Science	148	156	304
Environmental and Natural Resource Sciences	165	111	276
Ecoregion Science	189	141	330
Cooperative Department of Veterinary Medicine	114	123	237
	749	648	1,397

FACULTY OF ENGINEERING	Male	Female	Total
Biotechnology and Life Science	204	158	362
Applied Chemistry	148	62	210
Organic and Polymer Materials Chemistry	130	69	199
Chemical Engineering	116	48	164
Mechanical Systems Engineering	505	56	561
Applied Physics	223	39	262
Electrical and Electronic Engineering	407	33	440
Computer and Information Science	246	47	293
	1,979	512	2,491

Academic Year 2014



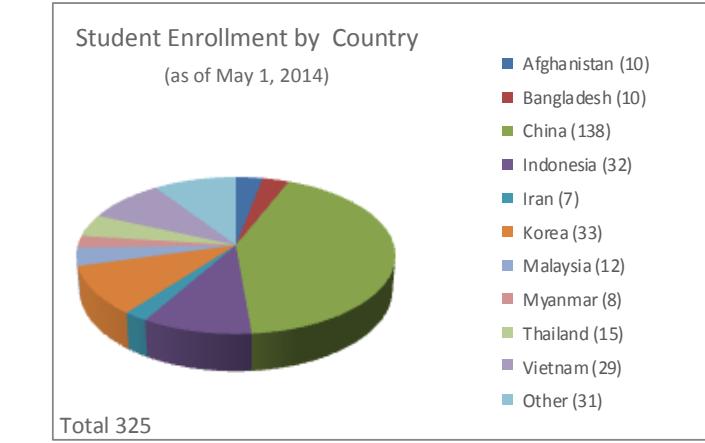
GRADUATE SCHOOL OF AGRICULTURE (Master's only)	Male	Female	Total
Science of Biological Production	43	23	66
Studies in Sustainable and Symbiotic Society	15	15	30
Applied Biological Chemistry	38	40	78
Bioregulation and Biointeraction	28	15	43
Natural Resources and Eco-materials	25	8	33
Environmental Science on Biosphere	22	13	35
Environmental Conservation	24	25	49
Environmental and Agricultural Engineering	13	6	19
International Environmental and Agricultural Science	31	24	55
	239	169	408



UNITED GRADUATE SCHOOL OF AGRICULTURAL SCIENCE (PhD)	Male	Female	Total
Biological Production Science	42	23	65
Applied Life Science	18	7	25
Symbiotic Science of Environmental and Natural Resources	25	20	45
Agricultural and Environmental Engineering	22	12	34
Science on Agriculture Economy and Symbiotic Society	15	11	26
	122	73	195

GRADUATE SCHOOL OF BIO-APPLICATIONS AND SYSTEMS ENGINEERING (MSc and PhD)	Male	Female	Total
Bio-Applications and Systems Engineering	161	47	208
Cooperative Major in Advance Health Science	7	9	16
	168	56	224

GRADUATE SCHOOL OF ENGINEERING (MSc and PhD)	Male	Female	Total
Biotechnology and Life Science	123	54	177
Applied Chemistry	156	53	209
Mechanical Systems Engineering	195	14	209
Applied Physics	51	5	56
Electronics and Information Engineering	54	4	58
Electrical and Electronic Engineering	131	8	139
Computer and Information Sciences	86	11	97
Industrial Technology and Innovation	69	15	84
	865	164	1,029



In the heart of lush greenery...

Fuchu Campus 府中キャンパス

Situated on 286,500m² of campus ground, Fuchu Campus has the luxury of providing the latest educational programs and state of the art facilities including the campus library, Animal Medical Center, Field Museum, and the Research Center for Frontier Plant Factory.

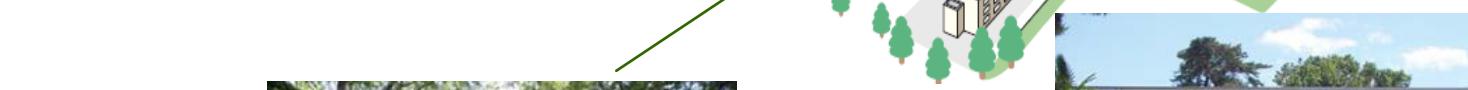
Agriculture



Faculty of Agriculture Main Building



Main Gate



Research Center for Frontier Plant Factory

This facility is for developing technology necessary to maintain plant health, producing high-yield and high quality fruit. We have successfully achieved a four season fruit production in a controlled environment through a combination of sunlight and artificial light.



Cow Stable

Dairy cows are free to move around the free-stall barn and by using the milking parlor method, the amount of milk produced and other info are registered and managed for each cow individually. Excrements are composted and utilized in the local crops.



Field Science Center

Play a major role in providing experimental and practical training and field-based education and research. Also include off-campus Field Museums such as suburban green lands for meteorological observation, production farmlands for paddy rice, upland crops, fruit harvest, dairy husbandry and sericulture, and forests dedicated to environmental conservation and timber production.



Fuchu Campus Library

Approximately 290,000 volumes of books and articles, plus electronic materials and information database, and group study rooms.



Yume Ichiba (Dream's Market)

By taking part in producing, harvesting and selling agricultural and forestry goods, students are able to learn-by-doing all processes. Vegetables, distilled spirit (*shochu*), blueberry jam and ice cream are some of the most popular selling items.



Animal Medical Center

Provides medical care for around 7,000 animal per year. Through consultations of small animals, the center is used for education and research of clinical veterinary. Fully equipped with the latest equipment and surgery rooms for high level medical needs.



Equestrian Ground

An intellectual field that stimulates curiosity

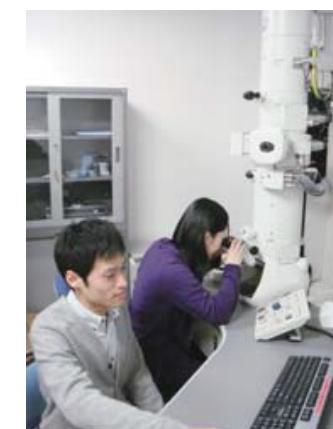
Koganei Campus 小金井キャンパス

At TUAT, we are dedicated to energy saving and Koganei Campus carries out this determination by installing monitors at entrances of main school buildings and dinning area where people frequent. This awareness has contributed significantly to reducing the use of energy. Koganei Campus sits on 160,000 m² of land and its buildings are state of the art. We are also very accommodative to our female researchers by establishing a nursery service for mothers to continue with their research while bearing children.



Research Center for Next Generation Capacitor

This facility was created to study the next generation electricity accumulation devices and innovative nano-electrode materials. We have succeeded in practical use of "nano-hybrid capacitor" which can achieve a density of 3 times the conventional energy.



Research Center for Science and Technology

Established in 2008 for the purpose of developing TUAT'S education and research programs in a way that comprehensively support and advance scientific research within the university. Consists of two centers, the Gene Research Center and the Instrumental Analysis Center.



Koganei Campus Library

Located in the center of the campus, the building design is very modern and attracts users everyday. 260,000 volumes of books, electronic database are accessible to students and staff.



Dormitory



Center for Design and Manufacturing

An Education facility assisting and collaborating with students in the production of equipment they need to conduct Basic Manufacturing Technology experiments and practical training.



Nature and Science Museum

Holds an extensive collection of items which played a leading role in industrial revolution, reeling and weaving machines, and samples used in silk cultivation. Also contains a collection of over 500 ukiyoe woodblock prints depicting silk cultivation from the Edo Period to the Meiji Period. There is also a new display room for TUAT's researches, new discoveries and state of the art technology as well as a science classroom for children.



New Lecture Building # 1



The 140th Year Commemorative Building

The "Ellipse" was built with the mission of energy saving and installed with solar power generating system, CO₂ reduction, environmental friendly air-conditioning, and LED illumination. There is a cafeteria, a meeting room and a multi-purpose hall.

THINGS TO DO IN TOKYO



Tokyo JR Train Station



Tokyo Sky Tree Tower (634 meters)



Tempura & Ramen Dishes



Auctions at Tsukiji Fish Market



Tokyo Tower (333 meters)



Kaminari Gate - Asakusa Temple



Summer Fireworks at Odaiba,
Tokyo Bay



Spring at Ueno Park

Cherry Blossom Viewing at
Shinjuku Gyoen National Garden



Meiji Shrine, Harajuku



ALUMNI VOICE

The pragmatic thinking I learned at TUAT is my support still now



Executive Managing Director
Kewpie Corporation

Mr. Yoshiaki Wada
Graduate of 1978 - Faculty of Agriculture
Department of Agricultural Chemistry

Even long after graduation, Mr. Wada completed the Management of Technology Graduate Course and received a Doctoral Degree in Applied Chemistry. He was inspired to learn something new by the feeling that engineering graduates should know not only about the technical part but also about marketing and finances to be able to deliver a finished product to the general public.

I finished my Agricultural Chemistry course at TUAT and joined the Kewpie Corporation in 1978. Since then, I spent 21 years in R&D, 7 years in Marketing, 3 years in Quality Assurance and 4 years in Production, which means that I spent about 80% of my work history in R&D, specially working in mayonnaise and salad dressing. It is fun to create new products that other people find tasty. But at the same time you need to predict market trends, think of a product concept, quality maintenance and stable production planning. I believe this pragmatic thinking was something I was able to cultivate during my student years at TUAT. I feel that everything I did during my student life, my research and thesis on the efficient use of *natto*'s (fermented soybeans) bacillus, my free research assisting experiments on motor nerve regeneration, the interactions with other universities through ESS Club activities were all useful after my graduation. At present, innovation is highly sought after in Japan. We are in need of engineers who can produce new value and set up new businesses and industries, not just make an extension to an existing thing. I hope prospective students choose TUAT and venture in this world, becoming experts contribute to the revitalization of Japan through the field of agriculture and engineering.

Ms. Ashizawa Sayaka
Graduate of 2008 - Faculty of Engineering,
Department of Applied Physics

During her student days, Ms. Ashizawa belonged to the university Orchestra Club, where she made many friends and enjoyed friendship with members from different majors. She began playing the violin after admission to TUAT out of curiosity, as she wanted to try a different instrument than the piano which she has been taking lessons.

I entered the Department of Applied Physics to try to explore how to use physics to contribute to the areas of medical and social welfare. In our research lab, we were involved in the development of biological microscope using laser. This microscope can observe cancer cells in their living state. Through this research, I found out that medical devices can support to save many lives. This desire to "contribute to worldwide research" became the driving force of my career. Currently, I am involved in the development of optical endoscope used in surgery, and am responsible for the design of tip lens. In order to interact with people of various positions at development and manufacturing levels, we are expected to have the ability to think logically and convey accurately. I believe that the basis of my ability was fostered under the guidance of our research lab. While there is pressure that "failure is not allowed" in our job, since we are dealing with human lives, the same driving force at student days is supporting me. My future goal is to develop a product that can further advance the methods of medical treatment, and hopefully one day we can create an endoscope that can be used at every household. I think the tranquil atmosphere at TUAT allowed us to carefully face our desires and to go forward with the goals.

The thought of contributing to the world by research has always inspired me.



Development Section Chief
Optical Development Division 1
Olympus Medical Systems Corporation

Ms. Yuko Iijima
Graduate of 1986 - Faculty of Agriculture,
Department of Agricultural Chemistry



Senior Technology Analyst
Environment Safety Division
Nippon Paper Industries Co. Ltd.

The fundamental knowledge and experiences I gained from my studies and experiments are my treasure

Starting from the research of the pulp, which is the basic ingredient of paper, and spending long years in R&D for paper production techniques and the development of new green technology, I had fun working to prove my own hypothesis and clarifying theoretically the solution to the problems. Presently I am a Senior Technology Analyst responsible for the environmental management in the factory. It is a big responsibility and I feel pride and reward for working in structuring the policy of our company's environment by ourselves. It is very fulfilling to think of ways of implementing environmental management in harmony with society on a daily basis. The reason I chose TUAT was because I wanted to learn more about the chemistry rooted in our daily lives, such as food and living things. That is why I can say that the foundations in chemistry and the many experiments I was able to do are my treasures. I believe at college we should take our interests seriously, think for ourselves and take action, carry that attitude for life and that is what keeps us growing, even in adulthood. I realized now that TUAT was the place that taught me the foundations of this attitude.

Hired in the same year the Equal Employment Opportunity Act was enacted, Ms. Iijima was the first woman to join the company in the main career track. She was remembered for that, but at the same time, there was no such thing as "maternity leave", so she went back to work without taking a childcare leave. The main reason was that, back then the general mentality was "taking a leave = self-defeat".

Mr. Kazuo Saito
Graduate of 1984 - Faculty of Engineering
Department of Polymer Materials Engineering

Stance of research to make presentation in a visible form was among many abilities trained at TUAT



Capacitor Division Chief
Nissinbo Holdings Inc.

The reason I wanted to learn fiber polymer engineering was because I felt that it is possible to become the No. 1 student if I tried my best. I chose the field of electricity storage because I have witnessed the practical applications of polymer in classrooms. I believe that in the laboratory we are taught not only just research but also the process involved. Thinking is important but to put those thoughts into action is also important. You can discover from the trial and error of the experiments. In addition, I learned at TUAT to test thoughts with a simple prototype, and present it showing actual materials, instead of mere desk study. I have not changed this mentality even after entering Nissinbo Holdings. Currently I belong to the Capacitor Division and we are involved in the development and research towards the commercialization of the power storage system that applies the electric double layer phenomenon. The next 5 years will be crucial to our research in the electrification and hybrid progress of the automobile industry and other industries. There will always be obstacles, but we will continue to research toward the users' satisfaction and the growth of our business.

Global Network and Affiliations

EUROPE

1 SWEDEN Royal Institute of Technology | **2 NORWAY** Norwegian University of Life Science | **3 UNITED KINGDOM** University of Brighton | University of Oxford | **4 FRANCE** University Joseph Fourier Grenoble I | University of Montpellier I | **5 GERMANY** Aachen University | University of Bonn | University of Hohenheim | Steinbeis University Berlin | Technische Universität München | **6 SWITZERLAND** Swiss Institute of Bioinformatics | **7 ITALY** Sapienza University of Rome | University of Milan | **8 SPAIN** Universidad de Oviedo | **9 CZECH** The Czech Technical University in Prague | **10 POLAND** Polish-Japanese Institute of Information Technology | **11 ROMANIA** "Politehnica" University of Timisoara | **12 RUSSIA** Pacific National University | Lomonosov Moscow State University | **13 BULGARIA** Trakia University | **14 KAZAKHSTAN** Al-Farabi Kazakh National University | **15 UZBEKISTAN** National University of Uzbekistan | **16 UKRAINE** Kyiv National University of Technologies and Design |

MIDDLE EAST

17 AFGHANISTAN Kabul University | **18 SAUDI ARABIA** Sana'a University | **19 TURKEY** Ankara University |

AFRICA

20 EGYPT Benha University | **21 GHANA** University of Ghana |

ASIA

22 INDIA University of Calcutta | **23 NEPAL** Agriculture and Forestry University | **24 BANGLADESH** Stamford University Bangladesh | **25 MYANMAR** Yezin Agricultural University | **26 THAILAND** Chulalongkorn University | Chiang Mai University | Thai-Nichi Institute of Technology | Kasetsart University | Mahidol University | Naresuan University | King Mongkut's Institute of Technology Ladkrabang | King Mongkut's University of Technology Thonburi | Mahanakorn University of Technology | Suranaree University of Technology | **27 CAMBODIA** Royal University of Agriculture | Institute of Technology of Cambodia | **28 INDONESIA** Bogor Agricultural University | Institute of Technology Bandung | Universitas Gadjah Mada | University of Pembangunan Nasional "Veteran" Yogyakarta | Lampung University | Agency for Assessment and Application of Technology (BPPT) | **29 PHILIPPINES** Visayas State University | **30 MALAYSIA** Universiti Teknologi Malaysia | Universiti Putra Malaysia | **31 VIETNAM** Can Tho University | Ho Chi Minh City International University | Bach Ma National Park | Hanoi University of Science and Technology | Hue University | Ho Chi Minh City University of Technology | University of Science, Vietnam National University - Ho Chi Minh City | **32 LAOS** National University of Laos | **33 CHINA** Donghua University | Beijing Forestry University | University of Shanghai for Science and Technology | Tsinghua University | Zhejiang University | East China University of Science and Technology | Northeast Forestry University | Guizhou University | Nanjing Agricultural University | Shenyang Agricultural University | Beijing University of Posts and Telecommunications | Northeast Agricultural University | China Agricultural University | Yunnan Nationalities University | Dalian University of Technology | Chinese Research Academy of Environmental Sciences | China Jiliang University | Shanghai Academy of Agricultural Sciences | Shanghai Jiao Tong University | Soochow University | Graduate School of Municipal and Environmental Engineering of Harbin Institute of Technology | **34 KOREA** Kyung Hee University | Jeju National University | **35 TAIWAN** Industrial Technology Research Institute |

THE AMERICAS

36 UNITED STATES OF AMERICA University at Buffalo, The State University of New York | Cornell University | University of Hawaii at Manoa | University of California, Davis | Purdue University | Hunter College of the City of New York | University of California at Riverside | University of Houston | **37 MEXICO** Universidad Autónoma Chapingo | **38 BRAZIL** Universidade Estadual Paulista | Universidade Federal de Viçosa | **39 PERU** Universidad Nacional Agraria La Molina | **40** Food and Agriculture Organization of the United Nations (FAO)



Global Café (gCafe)

Inaugurated in April 2013, the Global Café serves to bring the world closer to TUAT campus by encouraging interactions between TUAT's approximately 400 foreign exchange students and our local students. The Global Café is a place to deepen friendships, improve communication skills and practice a foreign language. One highlight is the poster sessions in which exchange students present their countries and culture to TUAT audience. Here at the Global Café every week students have a chance to showcase their presentation & discussion skills **IN ENGLISH** while receiving feedback from their peers.



International Center (IC)

As part of our strategic effort in the globalization of our educational services, the International Center provides consultations, guidance and language assistance for foreign students and researchers currently at TUAT. Also include basic advice for a smooth start to life in Tokyo such as accommodations, financials and medicals. For local students, we provide information and logistic support for Japanese students studying and living abroad.



FUCHU CAMPUS 3-5-8 Saiwai-cho, Fuchu-shi, Tokyo



KOGANEI CAMPUS 2-24-16 Naka-cho, Koganei-shi, Tokyo



Headquarters: 3-8-1 Harumi-cho, Fuchu-shi, Tokyo 183-8538 JAPAN
www.tuat.ac.jp/~intl email: okusai@cc.tuat.ac.jp