Tokyo University of Agriculture and Technology (National)
Graduate School of Agriculture

◆ **Program name**

International Innovative Agricultural Science Course,
International Innovative Agricultural Science Special Program

◆ **Degrees:**

a. Master of Agriculture

◆ **Credit and years needed for graduation:**

30 credits, 2 years

◆ **Address:**

3-5-8 Saiwai-cho, Fuchu-shi, Tokyo
183-8509 JAPAN

Features of University https://www.tuat.ac.jp/en/

The history of Tokyo University of Agriculture and Technology (TUAT) goes back to 1874 when it was Agricultural Training Institute and Silkworm Disease Experiment Section in the Ministry of Home Affairs. These two institutions had each own history and they were developed to Tokyo College of Agriculture and Forestry and Tokyo Textile College in 1944. Then, in 1949, under the modern university systems, the two colleges were unified to Tokyo University of Agriculture and Technology. In 2004, TUAT was transformed to National University Corporation, Tokyo University of Agriculture and Technology. TUAT has two campuses: Fuchu Campus for Institute of Agriculture (Land area about 28 ha) and Koganei Campus for Institute of Engineering (Land area about 16 ha). Both campuses are easy to access from the central Tokyo.

TUAT has two Undergraduate Schools: Agriculture and Engineering, three Graduate Schools for Master Courses: Agriculture, Engineering and Bio-Applications and Systems Engineering (BASE) and four Graduate Schools for Doctor Courses: United Graduate School of Agriculture Science (united with Ibaraki University and Utsunomiya University), United Graduate School of Veterinary Science (under Gifu University), Graduate School of Engineering and Graduate School of BASE. As of May 1, 2022, the numbers of students in Undergraduate Schools and Graduate Schools including Master and Doctor Courses were 3,778 and 2,037, respectively (not including number of doctor students of Graduate School of Veterinary Science). As of May 2020, the numbers of faculties and staffs were 382 and 209, respectively. The number of graduate students per one faculty is approximately 5.

The ethics of TUAT is MORE SENSE, it means Mission Oriented Research and Education giving Synergy in Endeavors toward a Sustainable Earth. As well as stimulating knowledge acquisition in the field of science and technology, TUAT nurtures students' autonomous capabilities to explore knowledge, pursue objectives and resolve problems. TUAT also cultivates and produces preeminent researchers, engineers and highly-skilled professionals who are capable of establishing a symbiotic society and of contributing to human society with deep intelligence, broad cosmopolitanism and high ethics.

TUAT promotes the creation of new first-rate knowledge through “mission-oriented research” varying from basic inquiries to technology applications in the fields of agriculture, engineering and the integration of both as mainstay supporting human society. With high ethics, TUAT fulfills social responsibility in the capacity of transmitting science and technology information towards the construction of a sustainable society where both human beings and nature can thrive in a symbiotic relationship. TUAT contributes to the Japanese advancement of science and technology by promoting cooperation and exchange with research institutions, industries and local communities. It helps to enhance, revitalize and develop industries and local communities by participating in the cultivation of academic culture and the creation of a foundation for scientific training.

Through education and research activities that foster a healthy development of science and technology and by returning such achievements to society, TUAT strengthens academic and cultural exchange with foreign countries to construct a global symbiotic society, with an aim to contributing to maintaining international peace and improving the welfare of the human race.

TUAT has remained highly competitive by winning number of MEXT programs among top universities in Japan. TUAT was ranked top 62 by QS World University Rankings by Subject 2022 - Agriculture & Forestry, which resulted within the best 3 Japanese Universities. In May 2021, TUAT has 161 affiliated universities and institutions in 41 countries. Table 1 and Figure 1 show the situation of international students in May 2022.

Table 1. Number of international students

Undergraduate	42
Faculty of Engineering	11
Faculty of Agriculture	31
Graduate School	305
G.S.Agriculture (Master)	83
G.S.Engineering (Master & Doctoral)	83
G.S.Bio-Applications and System Engineering (Master & Doctoral)	59
United G.S. Agricultural Science (Doctoral)	80
Others (Research students, etc.)	42
Total	389

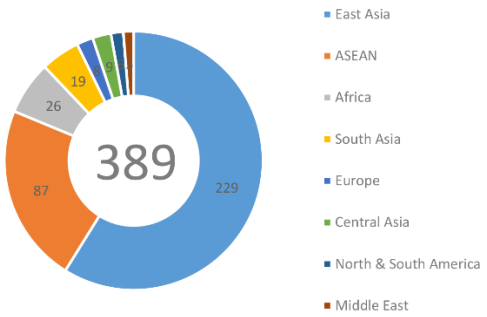

Fig. 1. International students by region

Features of Graduate School https://web.tuat.ac.jp/~ieas/index.html

Graduate School of Agriculture, TUAT, has been reorganized since from the fiscal year 2019. Along with this reorganization, Department of International Environmental and Agricultural Science (IEAS), which was initially established in 1999, has also been developed as International Innovative Agricultural Science (IIAS) Program of International Innovative Agricultural Science (IIAS) Course in Department of Agricultural Science, Graduate School of Agriculture.

IIAS provides a multi-disciplinary master's course designed to train students and researchers to be at the forefront in the development of the limited natural resources while maintaining the healthy environment for achieving Sustainable Development Goals (SDGs). In recent years, intense human activities such as rapid industrialization and overexploitation of natural resources have been causing severe global environmental problems. These problems include environmental pollution, global climate change, natural disasters, drought, acid rainfall, desertification, tropical deforestation, soil erosion, water pollution, and environmental hormones. In addition, the exponential population growth coupled with global food shortages is the most pressing issue that demands utmost attention. To tackle these problems, a holistic approach to sustainable development is indispensable. We should develop appropriate policies for maximizing food production to improve the quality of human life, while avoiding the degradation of limited natural resources, and maintaining an ecological balance.

Lately, there is an increasing global awareness of environmentally friendly methods of food production. We recognize that the success of such methods depends on the integration of concepts and technologies from diverse disciplines, and that innovative and multi-disciplinary approaches can ensure such sustainable development.

IIAS consists of three major research and education fields: International Environmental Rehabilitation and Conservation, International Biological Production and Resource Science, and International Development on Rural Areas. Their aims are shown in Fig. 2.

In newly introduced IIAS curriculum since 2019, we also have collaboration with the fields of applied animal science and applied biological chemistry. IIAS has two courses: Regular and Special ones. The regular course starts in April and the Special one starts in October. All lectures are offered in English. IIAS members are currently conducting various international programs on agricultural development.

Please see the detailed information in the following website. https://web.tuat.ac.jp/~ieas/

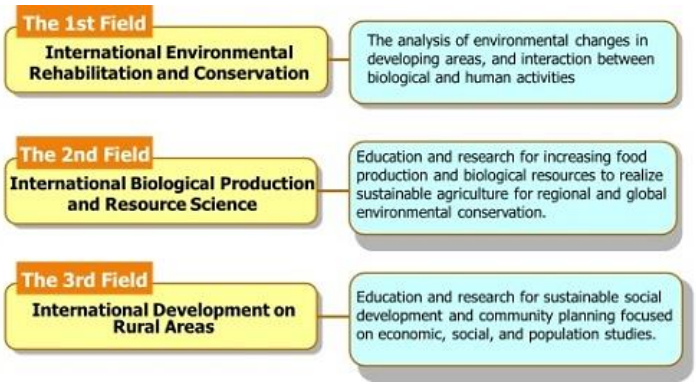

Fig. 2. Three major research and education fields in IIAS

Features of the Program https://web.tuat.ac.jp/~ieas/en/about_iias.html

JDS Fellows will be involved in the IIAS Special Program starting October. The Course primarily focuses at optimization of food production, conservation of the environment, and the restoration of degraded resources. We emphasize on integrating the technical merits of the various disciplines to develop holistic methods of resource development. Ecologically, culturally, and socially effective strategies will then be applied to actual rural problems through international technology transfer.

IIAS Special Program aims at training engineers and scientists who have broader international views of "Environmental and Agricultural Science" and "innovative agricultural science" and wider knowledge in several disciplines such as sociology, ecology, agronomy, and engineering. Today, environmental policy is an important subject to the environmental and agricultural technologies of our interest. We particularly focus on the policy-related studies in the fields of human, social and economic sciences with regards to the technological functions.

Other examples of international programs in TUAT
TUAT offers various international programs such as the following examples.
1) STEP (Short Term Exchange Program)
This is one-year exchange program for sister schools with the following objectives: 1) to provide international students with opportunities for education and research regarding the latest industry and technology in Japan, 2) to contribute to the development of science and technology through cooperative research and work with international students, 3) to promote the globalization of TUAT by fostering the relationship between TUAT students and international students, and 4) to give a better understanding of Japan to international students, and further develop competent individuals familiar with Japan is to enable them to work in international fields.
https://web.tuat.ac.jp/~steptuat/

2) ASEAN International Mobility for Students Program (AIMS Program)
This program is specifically offered for Senior and Junior level undergraduate students. ASEAN International Mobility for Students Program (AIMS Program) is a government supported multilateral educational program in the ASEAN region, launched in 2010 by coordination of Malaysia-Indonesia-Thailand and in 2013 current members include Vietnam, the Philippines, Brunei and Japan. Please visit the web site below for more information.
https://web.tuat.ac.jp/~intl/aims/index.html

Necessary Curriculum to Obtain the Degrees

1. Field of International Environmental Rehabilitation and Conservation
This field offers the following topics such as: environmental changes in developing areas, ecosystem in agricultural lands, investigation methodology for environmental deterioration, interaction between biological and human activities, and remediation and conservation of regional environment.

2. Field of International Biological Production and Resource Science
Education and research are provided for increasing food production and bio-resource recycling in order to pursue sustainable agriculture for regional and global environmental conservation.

3. Field of International Development on Rural Areas

Education and research are provided for sustainable social development and community planning focused on economic, social, and population studies combined with environmental technology and food production technology.

In addition to the three fields above, IIAS has two additional research areas such as International Applied Animal Science and International Applied Biological Chemistry.

The duration of the master's program is 2 years. The prerequisite for admission to master's courses at TUAT is principally 16 years institutional education (from primary school to university). The candidates who have 14 to 15 years of academic background may be accepted after the University Committee evaluated their educational and career backgrounds. Master of Agriculture or Master of Philosophy will be conferred to IIAS students. **JDS fellows are requested to obtain Master of Agriculture** in the IIAS Special Program. All students are required to earn 30 credits out of the following classes during the 2 years (Table 2).

Table 2. List of curriculums offered in IIAS

Curriculum	Instructor	Study Year	Credits	
			Compulsory	Elective Compulsory
General Study Subjects				
Overview for Agricultural Production Sciences I	Kawaide et al.	1・2		1
Overview for Agricultural Production Sciences II	Sugihara et al.	1・2		1
Overview for Applied Biological Chemistry I	Nomura et al.	1・2		1
Overview for Applied Biological Chemistry II	Yamagata et al.	1・2		1
Overview for Environmental Science and Natural Resources I	Horikawa et al. / Kayo	1・2		1
Overview for Environmental Science and Natural Resources II	Watanabe M. et al.	1・2		1
Overview for Agricultural Engineering and Agro-Food Informatics I	Chosa et al.	1・2		1
Overview for Agricultural Engineering and Agro-Food Informatics II	Tatsumi et al.	1・2		1
Overview for Sustainable Societies I	Yoshida H. et al.	1・2		1
Overview for Sustainable Societies II	Arai et al.	1・2		1
Overview for International Innovative Agricultural Science I	Gomi et al.	1・2		1
Overview for International Innovative Agricultural Science II	Okazaki et al.	1・2		1
Introduction for Science of Agriculture and Technology	BASE Faculties	1・2		1
Special lecture for 21st century's agriculture science	Kato et al.	1・2	1	
Multicultural communication and transmission	Tasaki	1・2		2
Advanced lecture of Green, Food, and Life science	Yoshida M.	1・2		1
Arts of Intercultural Communication	TUFS Professors	1・2		2
Advanced lecture on Agriculture Science I	(Visiting professors)	1・2		1
Advanced lecture on Agriculture Science II	Saito K.	1・2		2
Japanese I	Hongo	1・2		2
Japanese II	Ito	1・2		2
General Exercise Subjects				
Exercise for Methods of Agricultural Experiment Planning and Statistical Analysis I	Fukano, Kozaki,	1・2		1

	Okuda, Kawamori			
Exercise for Methods of Agricultural Experiment Planning and Statistical Analysis II	Abe	1・2		1
Field and Laboratory Safety and Research Ethics I	Shirabe	1・2		1
Field and Laboratory Safety and Research Ethics II	Shirabe	1・2		1
Management and operation of intellectual property	Okutani	1・2		1
Exercise for Spatial Information Analysis	Iwao	1・2		1
Subject Exercise for Agricultural Research	Supervisor	1・2		1
Practical Exercise for Agricultural Research	Supervisor	1・2		1
International Research Presentation I	Supervisor	1・2		1
International Research Presentation II	Supervisor	1・2		1
Special Field Subjects				
International Environmental Rehabilitation and Conservation I	Gomi	1・2		2
International Environmental Rehabilitation and Conservation II	Watanabe, Kato	1・2		2
International Biological Production and Resource Science I	Okazaki, Oikawa	1・2		2
International Biological Production and Resource Science II	Katsura, Okazaki	1・2		2
International Life and Biological Chemistry I	Miura et al.	1・2		2
International Life and Biological Chemistry II	Yamagata et al.	1・2		2
International Rural Development and Rural Area I	Kawabata, Nie	1・2		2
International Rural Development and Rural Area II	Yamada, Maru	1・2		2
International Applied Animal Science I	Takehara et al.	1・2		2
International Applied Animal Science II	Uchide et al.	1・2		2
Special Lecture on International Innovative Agricultural Science I	Makihara	1・2		2
Thesis Related Courses				
(Special Research)				
Special Research in Agricultural Science I (or III)	Supervisor (Main)	1	4	
Special Research in Agricultural Science II (or IV)	Supervisor (Main)	2		1
Research expansion in Agricultural Science I (or III)	Supervisor (Sub)	1		1
Research expansion in Agricultural Science II (or IV)	Supervisor (Sub)	1		1
(Special Exercise)				
Special Exercise in Agricultural Science I (or II)	Supervisor (Main)	1	4	
Special exercise for Publication Review I (or II)	Supervisor (Main)	1	2	

Completion Requirements: Students must obtain and pass 4 or more credits from the General Study Subjects (one and more credit from other course and “21 century agriculture science” is required), 2 or more credit from General Study Exercise, 8 and more credit from the Special Field Subjects (including 2 and more credit from the other course). Research Subject for Thesis (contains 12 credits) are required subjects. Total of 30 credits or more are required for the completion of IIAS curriculum.

List of faculty members capable of guiding JDS Fellows

Supervisors for JDS students will be assigned during the application/selecting processes. The following shows the list of supervisors (Name, Position, Research topic below).
Please also see detailed information in the following web site:
https://web.tuat.ac.jp/~ieas/en/faculty_members.html

Field of International Environmental Rehabilitation and Conservation

WATANABE Hirozumi, Prof.

Non-point source pollution control of the pesticide through field monitoring and computer modeling

KATO Tasuku, Prof.

Conduct research that increases ecological service through watershed management and hydrologic applications in Asian agriculture irrigation systems.

BOULANGE Julien, Associate Prof.

Using an interdisciplinary and large-scale (continental, global) modeling approach, I thoroughly investigate global environmental threats, with a focus on quantitatively identifying the impacts of climate change and anthropologic activities on water, soil, and agricultural systems.

Field of International Biological Production and Resource Science

OKAZAKI Shin, Prof.

Investigation of beneficial microbes through genomic analysis and molecular biology.

KATSURA Keisuke, Associate Prof.

Ecology in crop production, crop physiology and agronomy, research on improving crop productivity in developing countries.

OIKAWA Yosei, Senior Assistant Prof.

Sustainable agriculture and forest management in the tropics.

Field of International Development in Rural Areas

YAMADA Masaaki, Prof.

Development and extension of sustainable agriculture and appropriate technology cooperation in developing region.

KAWABATA Yoshiko, Prof.

Research in water quality through revealing the problem, finding the solution and rehabilitate the environment in arid land.

NIE Hai-song, Associate Prof.

Research in gender issue such as reproductive health and population control in rural area.

MARU Takeshi, Senior Assistant Prof.

Agricultural economics and development economics

Academic Schedule

This is the reference schedule for the academic years for the Special Course

The first year

October	Entrance Ceremony and course orientation. The fall semester classes start.
	Library training is given for literature survey.
	Regular weekly seminar series in IIAS by faculty members are also started.
	A field trip is organized for the all first-year students of IIAS special and regular courses
November	University festival
(Winter)	Excise for Geographical Information Systems (GIS)
April	Regular classes and seminars of the spring semester start.
July	Intermittent evaluation by poster presentation.

The second year

October	Fall semester starts.
	Regular classes and seminars are started. Students concentrate more on own research.
April	Spring semester starts.
July	Submitting master's thesis. Final presentations of master's studies
August	Revising master thesis for final submission
September	Degree ceremony

Facilities

International Affairs Office of TUAT offers various services to JDS students and other international students and fellows. They include Japanese language courses, medical care, international houses (=dormitories), library services, and IT services.

TUAT has international houses on both Fuchu and Koganei campuses. Table 3 shows the room types and numbers as of 2022. In addition, the Hinoki Dormitory in Fuchu Campus is also available for both international and Japanese students. International students of TUAT can also live in the International Student Dorm of Hitotsubashi University located in Kodaira City, about 5 kilometers from Fuchu campus. The International Affairs Office provides more detailed information. Tenant applications are accepted: every January, March (new students only), and August.

Table 3. Capacity data of each Dormitory

	Singles	Doubles	Family units	Total
Fuchu	40	4	4	48
Koganei	32	3	2	37

Note: Length of residence is 1 year or less

Message for Applicants

In Vietnam, although great progress of industrialization and modernization in the country has been made recently, agriculture, forestry and fisheries are still main and important industrial sectors that are representing in Southeast Asian countries. Recently, Vietnamese agricultural system has been drastically changed by Intensification, mechanization, and introduction of new technologies. However, these modernization of agricultural and related sectors cause many problems that people have never been faced before. These problems need to be solved for its further successful agricultural and rural development at its local level, especially to increase income of workers and improve living conditions in rural areas.

For the purpose and goal, the country first of all needs to solve such urgent problems as its international competitiveness of agricultural products by overcoming its weakness of low agricultural technology as well as of food safety management. In particular, by promoting some vital tasks which are closely related to those in its technical and institutional aspects, the country needs to foster a greater number of skillful and well-learned development leaders who contribute greatly to its technological and institutional improvement much more efficiently at the local level. Some crucial constraints of the use of rural resources and farming skills should be avoided. The country finally aims at fully utilize the whole potentials of its countryside for further successful agricultural and rural development.

International Innovative Agricultural Science Course (IIAS) aims at improvement, restoration, and conservation of the environment for developing high level agricultural production. The goal of education in IIAS is to establish a long-term comprehensive view of innovative agriculture and environmental issues. Using the international collaboration network, members of the program carry out individual or group research projects related to the fields of agricultural and environmental science in a holistically interconnected way. At the same time, we will take the outcomes of researches and apply them to find solutions that are ecologically, culturally, and socially applicable in practical ways in developing regions. This IIAS program aims to train not only specialized technicians in their fields, but also a new type of human resources who profoundly understand importance of holistic, interconnected approach among agriculture, rural development, and environmental sustainability.

Since IIAS was established as Department of International Environmental and Agricultural Science (IEAS) in 1999, we have hosted many international students from Japan, South Korea, China, Vietnam, Cambodia, Laos, Thailand, Myanmar, Malaysia, Indonesia, Mongolia, India, Bangladesh, Nepal, Mongolia, Uzbekistan, Afghanistan, Iran, Kenya, Ghana, Brazil, etc. Our university has strong international network of sister universities. IEAS and IIAS alumni and students include 33 JDS fellows from Vietnam among 108 JDS fellows from Asian countries. They have been playing active roles related with agriculture and environmental fields. We train students to serve as leaders with “field-oriented” mind and skill sets so that they can identify environmental issues and propose effective measures for achieving sustainable development while cooperating with local and global stakeholders in the world.

Field Trip to Fukushima

Visit to an organic tea farm in Fujieda, Shizuoka